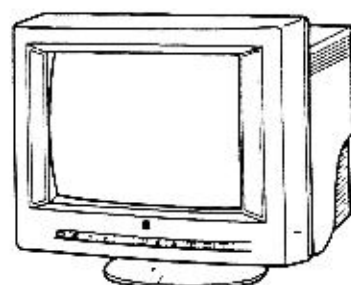


Service Manual

Multi-Scan Color CRT Display
MODEL NO. 1769GA-1

ViewSonic 17GA



CONTENTS

SERVICE WARNING.....	1
SAFETY PRECAUTIONS.....	2
GENERAL INFORMATION.....	3
SPECIFICATIONS.....	3
DIMENSIONS.....	13
DISASSEMBLY INSTRUCTIONS.....	15
CONTROL LOCATION.....	18
CAUTION FOR ADJUSTMENT AND REPAIR.....	19
CAUTION FOR SERVICING.....	19
ADJUSTMENT PROCEDURE.....	20
SOFTWARE.....	22
ADJUSTMENT CONTROL LOCATION.....	23
REQUIRED ADJUSTMENT PROCEDURE AFTER A PART IS REPLACED.....	24
ADJUSTMENT PROCEDURE.....	25
BLOCK DIAGRAM.....	36
CONDUCTOR VIEW.....	44
SCHEMATIC DIAGRAM.....	47
TROUBLE SHOOTING TIPS.....	58
EXPLODED VIEW.....	64
REPLACEMENT PARTS LIST.....	65


ViewSonic

5.4 Acceptable timing

- If your timing is within the following specification, this CRT display can automatically function with a certain size and position.

Horizontal: Sync frequency: 30.0 ~ 69.0 kHz
 Blanking Time: $\geq 3.0 \mu\text{s}$
 Back Porch: $\geq 1.25 \mu\text{s}$
 Front Porch: \leq Back Porch
 Sync Width: $\geq 1.2 \mu\text{s}$

Vertical: Sync frequency: 50.0 ~ 160.0 Hz
 Blanking Time: $\geq 0.5 \text{ ms}$
 Back Porch: $\geq 0.4 \text{ ms}$
 Sync Width: $\geq 0.045 \text{ ms}$

- Several items like size, position and distortion can be adjusted through the OSD menu, and if you want to keep it, please push the  key for memory, or keep the key untouched for about 20 seconds and it is automatically memorized.

NOTE: In case of RECALL, if the key is untouched for about 30 seconds, RECALL function will be canceled.

Please note, however, that there are cases where you can not get the size and/or position you want. (For instance, Display video Time is too short, you can't get bigger size of the image.)

- The CRT adopted in this CRT display is designed to minimize the moire phenomenon at a suitable size for typical display modes. However, there might be a display format among many formats, in which the moire phenomenon appears on this display.

5.5 Signal level and input impedance

5.5.1 Video Signal level

- This CRT display is adjusted at the factory using 0.7V p-p Video Signal, Black level is 0V.
- This CRT display is compatible with 1.0V p-p Video Signal by using the Video input level selection.

5.5.2 Sync Signal level

- H/V Separate, H/V Mixed : TTL level
- Sync on Green: 0.3 V p-p $\pm 0.015 \text{ V}$

5.5.3 Input impedance

- Video input: 75 Ω
- Sync input: $\geq 1 \text{ k}\Omega$

5.6 Display performance

5.6.1 Display area

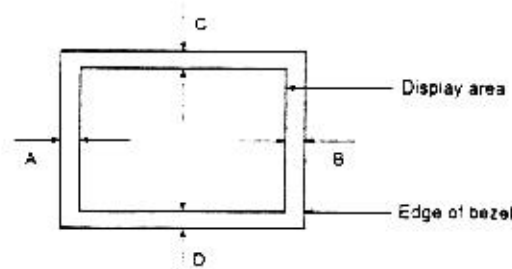
1) PRESET TIMING

	(MODE 1 & 2)	(MODE 3)
WIDTH	300 mm $\pm 5 \text{ mm}$	286 mm $\pm 5 \text{ mm}$
HEIGHT	225 mm $\pm 5 \text{ mm}$	229 mm $\pm 5 \text{ mm}$

5.6.2 Centering

1) PRESET TIMING (MODE1-3)

$$\begin{aligned} \text{IA} - \text{BI} &\leq 4 \text{ mm} \\ \text{IC} - \text{DI} &\leq 4 \text{ mm} \end{aligned}$$

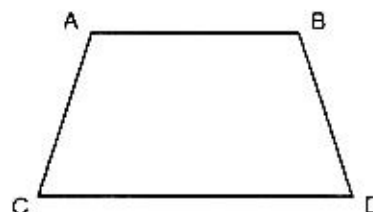


5.6.3 Distortion

1) Trapezoid

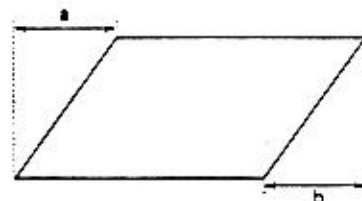
$$\begin{aligned} \text{IAC} - \text{BDI} &\leq 2.0 \text{ mm (one side)} \\ &\leq 3.0 \text{ mm (total)} \end{aligned}$$

$$\begin{aligned} \text{IAC} - \text{BDI} &\leq 2.0 \text{ mm} \\ &\leq 1.0 \text{ mm (after adjustment)} \end{aligned}$$



2) Parallelogram

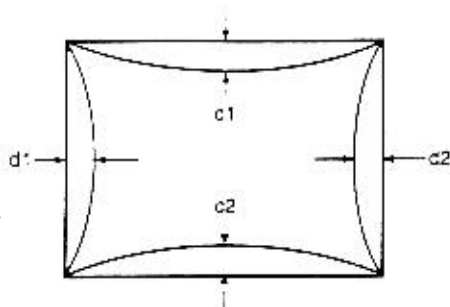
$$\begin{aligned} a, b &\leq 2.0 \text{ mm} \\ &\leq 1.0 \text{ mm (after adjustment)} \end{aligned}$$



3) Pincushion and Barrel

$$|C1|, |C2| \leq 2.0 \text{ mm}$$

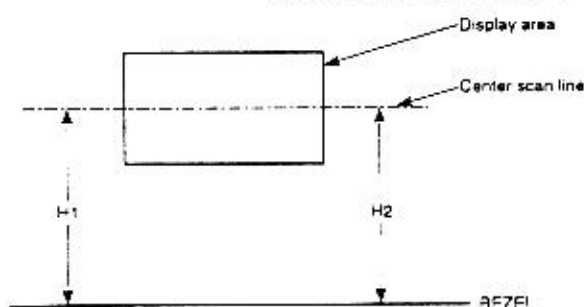
$$|d1|, |d2| \leq 2.0 \text{ mm}$$



5.6.4 Rotation

$$|H1 - H2| \leq 2.0 \text{ mm (0.079")}$$

$$\leq 0 \text{ mm (after user adjustment)}$$



5.6.5 Linearity

Horizontal linearity

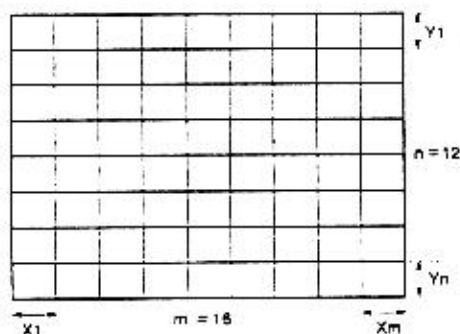
$$= \frac{X_{\text{max.}} - X_{\text{min.}}}{X_{\text{max.}} + X_{\text{min.}}} \times 100 \% \leq 6 \% (48 \sim 64 \text{ kHz})$$

$$\leq 7 \% (\text{except above frequency range})$$

Vertical linearity

$$= \frac{Y_{\text{max.}} - Y_{\text{min.}}}{Y_{\text{max.}} + Y_{\text{min.}}} \times 100 \% \leq 5 \% (60 \sim 75 \text{ Hz})$$

$$\leq 6 \% (\text{except above frequency range})$$



<Conditions>

Display image ----- crosshatch pattern

Maximum and minimum values should not be adjacent to each other.

X max. is maximum value among X1~Xm

X min. is minimum value among X1~Xm

Y max. is maximum value among Y1~Yn

Bandwidth | 86 MHz (Typ.)

5.7.2 Maximum luminance

Value	120 cd/m ² (Typ.) for 5% white field at the center of the display area. 110 cd/m ² (Typ.) for 100% white field at the center of the display area. Specified by 9300 K + 27 MPCD
Conditions	Display image : White full flat field Luminance : Max. (Contrast : Max.) (Brightness : Detent point)

5.7.3 Minimum luminance

Value	$\leq 26 \text{ cd/m}^2$ at the center of the display area. Specified by 9300 K + 27 MPCD
Conditions	Display image : White full flat field Luminance : Min. (Contrast : Min.) (Brightness : Detent point)

5.7.4 Brightness variation

Value	70 % (Min.) Variation = $C/A \times 100$
Conditions	Display image : White flat field Luminance : MAX (Contrast : MAX) (Brightness : Detent point) A : Luminance at center position C : Luminance at position of lowest brightness

5.7.5 Display area regulation

	Display area variation	Range of variation
Due to Luminance	within 3 mm	26~110 cd/m ² (white flat field)
Due to Power Supply	within 3 mm	AC : 90-132 V or 180-264 V
Due to Temperature	within 4 mm	0 ~ 40° C (fh=30-65 kHz)

5.7.6 Color Point

< Conditions >

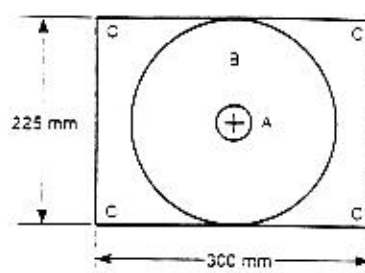
Display image : White flat field at the center of the display area.

Luminance : Brightness Detent point.

Contrast	max	min
Value	9300 K + 27 MPCD $x = 0.281 \pm 0.020$ $y = 0.311 \pm 0.020$	9300 K + 27 MPCD $x = 0.281 \pm 0.020$ $y = 0.311 \pm 0.020$

5.7.7 Misconvergence

Center area of display (A) : 0.3 mm (Max.)
 Corner area of display (B) : 0.4 mm (Max.)



<Conditions>

Display image : Crosshatch pattern mixed with R, G and B colors.

Convergence gauge : KLEIN CM7AG or equivalent.

Display area : W x H 300 x 225 mm

5.7.8 Purity

Conspicuous mislanding shall not be visible within display area at a distance of 60cm from CRT surface.

<Conditions>

Display image : White flat field

Luminance : Contrast max, Brightness Detent point

5.7.9 Jitter

Invisible at a distance of 60 cm from CRT surface.

6. ENVIRONMENTS

6.1 Ambient temperature, humidity and altitude

	Operating	Storage and shipment
Temperature	0 ~ 40° C **	-20 ~ +60° C (-4 ~ 140° F)
Humidity	5 ~ 90 % **	5 ~ 90 % **
Altitude	3,000 m (Max.) (10,000 ft)	12,000 m (Max.) (40,000 ft)

** 0 ~ 35° C for 66 ~ 69 kHz

** Non-condensation

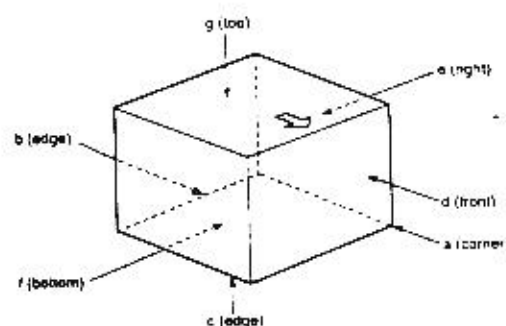
6.2 Vibration and shock

6.2.1 Vibration

Vibration									
	Order of tests	Direction of vibration	Acceleration		Frequency	Sweep	Test time		
			Non-operation	Storage and shipment					
Unpacked	1	Vertical	Up to down	2.9 m/s ² (0.3 G)	5 - 55 Hz	120 s	30 min		
	2	Horizontal	Front to back				15 min		
	3		Right to left						
Packed	1	Vertical	Up to down	12.3m/s ² (1.25 G)	5 - 50 Hz	810 s Log sweep	40 min		
	2	Horizontal	Front to back	7.4 m/s ² (0.75 G)			20 min		
	3		Right to left						

6.2.2 Shock (Drop test)

Unpacked	20 G One time for each face (6 faces) (non-operation)			
Packed	Order of drop	Face to drop is to face the floor. (See the figure)	Height	Number of drop
	1	a, b, c, d, e, g	60 cm	1 time for each
	2	f	70 cm	



7. REGULATORY STANDARDS

7.1 Safety standards

Applicable standards

UL 1950, Listing

CSA 22.2 No. 950, Products Certification

TÜV (IEC-950)/GS (ZH1)

DHHS, 21 CFR subchapter J, X-Ray Radiation

PTB, X-Ray Radiation, Approval

HWC

NORDIC

Energy Star

7.2 EMC standards

Designed to meet following standards

VCCI class II

FCC: FCC part 15, subpart B, class-B

VDE 0878/06.83

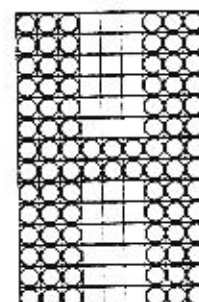
VfG 243/1991

CISPR22 class B

MPR- II Radiation

<EMC test pattern>

White, full "H" characters (9 x 14 dots), block (12 x 24 dots) "H" character font is as follows



8. POWER CORD

•Northern Hemisphere Version

(North America and Japan)

--- CSA approved power cord (Wall Type)

•European Version

--- VDE approved power cord (PC Type)

•Australia, New Zealand Version

--- None

9. SIGNAL CABLE

Signal cable with Mini D-Sub 15P connectors at both ends is put in package.

Length : 1.5 meter (4.93 feet)

10. RELIABILITY

> 55,000 hrs (demonstrated MTBF)

10. COLOR CRT DEFECTIVE STANDARD

10.1 Specification of screen blemishes

This instruction is applied to inspection of the screen faults and the glass quality of the faceplate.

10.2 Test procedure

102.1 Tests are to be done under the following two conditions:

- With a blanked white raster at 80 μ A.
- With incident light (white light of 700 - 1000 lux at the center of the screen: the tube does not operate).

102.2 Viewing distance should be 60 cm minimum.

Faults not visible at this viewing distance are permitted.

102.3 The following quality areas are specified:

Zone A: Rectangular area (sides X and Y) in which the point of intersection of the diagonals coincides with the mechanical center of the screen.

	Screen size	
	X	Y
Zone A	320mm (12.6")	240mm (9.45")

Zone B: The remaining screen area except zone A. Specified zone is applied to glass faceplate defects.

10.2.4 Remarks concerning faults

a) Unless otherwise specified, the size of a fault is the smallest value found with one of the two formulas:

$$\frac{a+b}{2} + \frac{a}{20} + 2b \quad (a = \text{length}, b = \text{width})$$

b) For entirely or partially missing and/or non-fluorescent phosphor dots hold the following definitions:

Entire defect: Remaining part is not more than 50% of the complete dot.

Partial defect: Remaining part is between 50% and 75% of the complete dot.

10.3 Permissible limit

10.3.1 Screen faults

Missing phosphor dots, black spots, filled mask holes and copper stains

Size of defects				Max. permis- sible number	Min. permissible distance between defects	Max. permissible number in circle of ϕ 50 mm
Entire defects	A	A1	3 adjacent trios or more	0	—	—
		A2	3 adjacent same color dots or more	0		
		A3	More than 6 adkacent dots	0		
	B	B1	2 adjacent trio	0	—	—
		B2	4 or 5 adjacent dots	0		
		B3	2 adjacent same color dots	1		
	C	C1	1 trio	1	20 mm	—
		C2	2 adjacent different color dots	2		
		C3	1 dot	7		
	B + C			—	20 mm	—
Partial defects	D	3 adjacent same color dots or more		—	—	5
Total pieces of defects excluding partial defects				7	—	—

— Entire defects having separation less than min. permissible distance are defined as an adjacent defects.

— Defects of remaining part more than 75% is ignored, except for concentration having diameter more than ϕ 8 mm

10.3.2 Glass faceplate defects

(A) Air bubbles, open bubbles, stones and elongated air bubbles.

Area		Zone A	Zone B
Permissible major defects	Air Bubble (average dia.)	0.51 – 0.70 mm	0.51 – 0.70 mm
	Spot and open air bubble (average dia.)	0.51 – 0.70 mm	0.51 – 0.70 mm
	Maximum Permissible number	Each zone	1
		Total	2
	Minimum allowable distance among defects	57 mm	
Permissible defects within any 50 m-dia.-circle	Air Bubble (average dia.)	0.25 – 0.50 mm	
	Spot and open air bubble (average dia.)	0.20 – 0.40 mm	
	Max. permissible number	2	
	Δ Minimum allowable distance among defects	0.20 – 0.40 mm	
ΔΔ Elongated air bubble (permissible size)		Width	0.10 – 0.20 mm
		Length	4.0 mm
			6.0 mm

Δ This also applies to the distance to major defects.

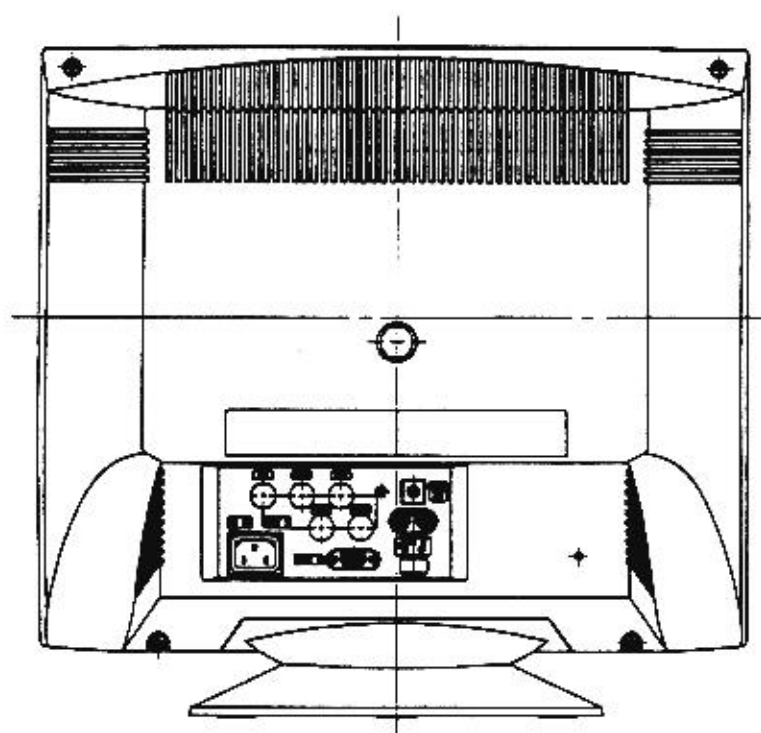
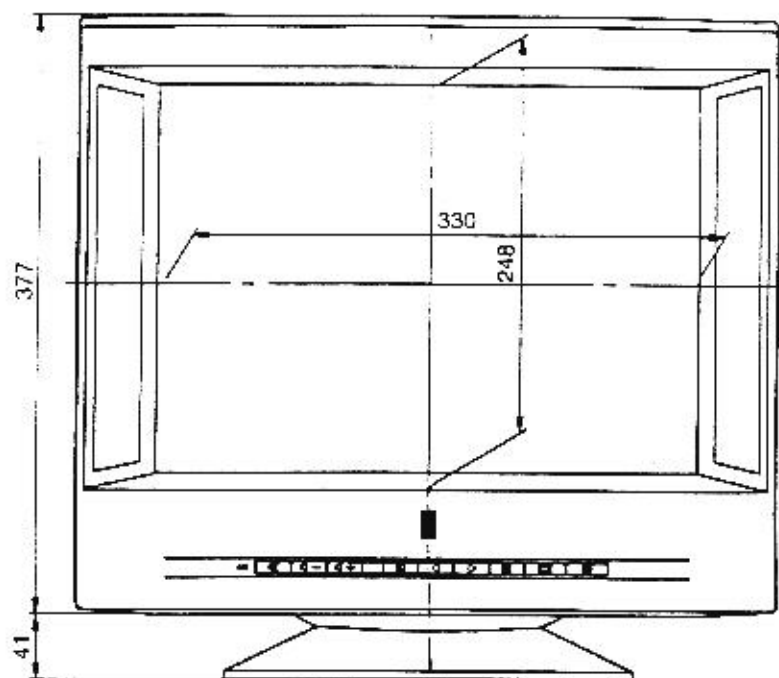
ΔΔ This should be evaluated by its average diameter, and then relevant standards of air bubble are applied; except number of defects for each zone, minimum distance among defects and maximum limit of average diameter.

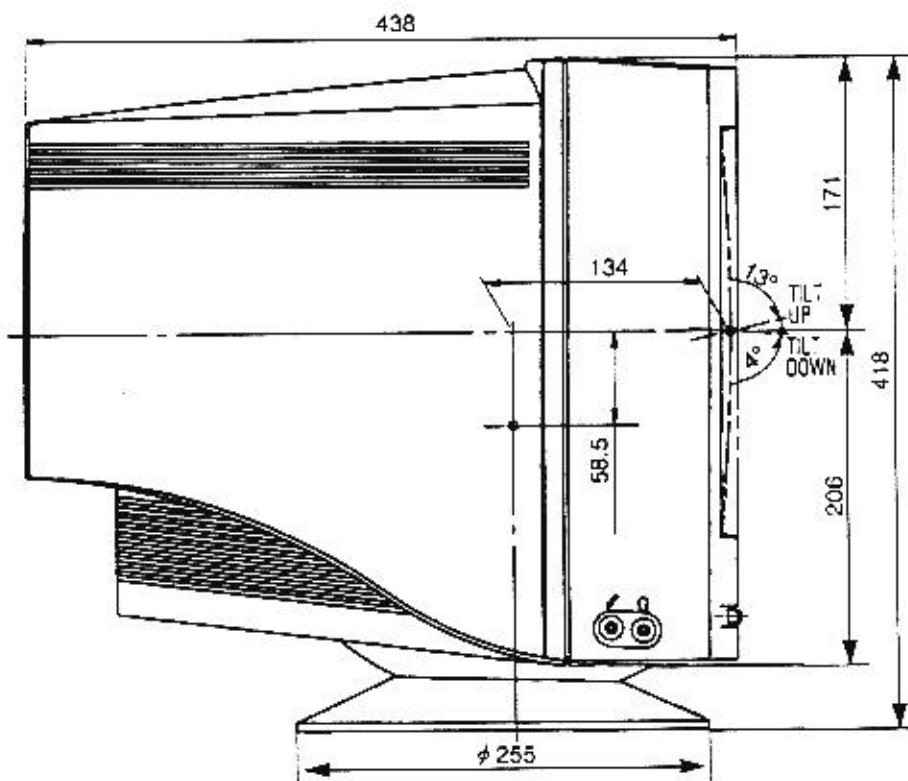
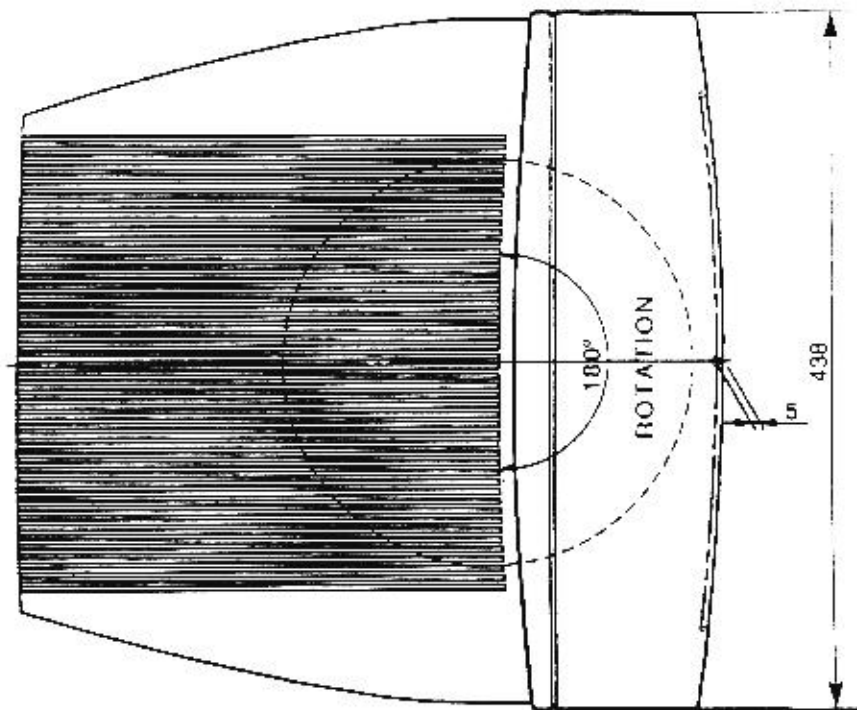
(B) Scratches

Width (mm)	Maximum allowable length (mm)
< 0.05	permitted
0.05 - 0.10	25.4
0.11 - 0.15	12.7
> 0.15	rejected

(C) Other defects not stated above such as chips, cracks, bruises, shear marks, clouds and polished patterns are not allowed when they substantially spoil appearance, viewed from the viewing distance.

DIMENSIONS



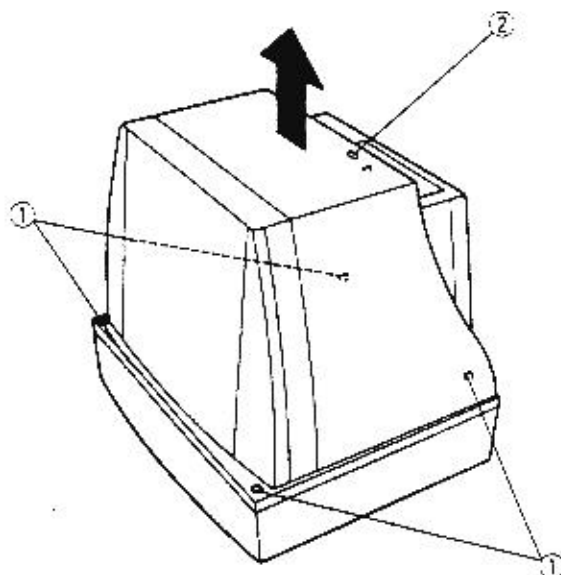
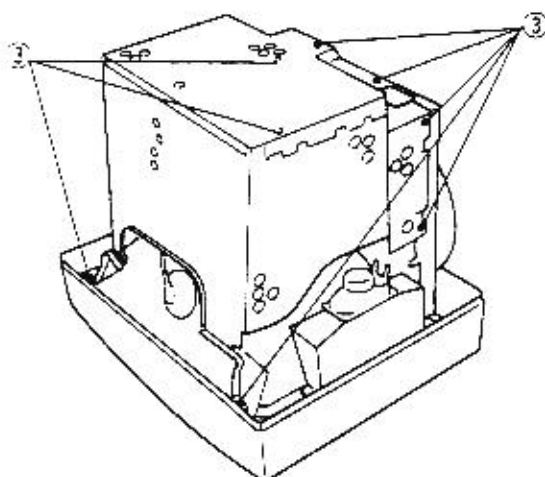


DISASSEMBLY INSTRUCTIONS

1. Rear cover removal

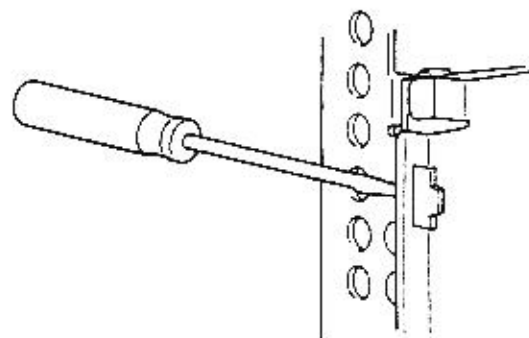
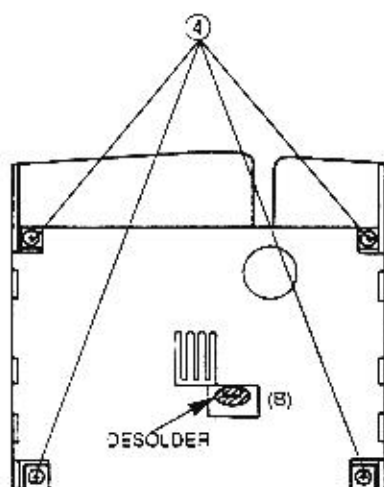
Note: Spread a mat underneath to avoid damaging the CRT surface.

- 1) Remove the four large screws ① and the small screw ② from the rear cover.
- 2) Remove the cover.
- 3) Remove the eight screws ③ from the shield case.
- 4) Remove the shield case.

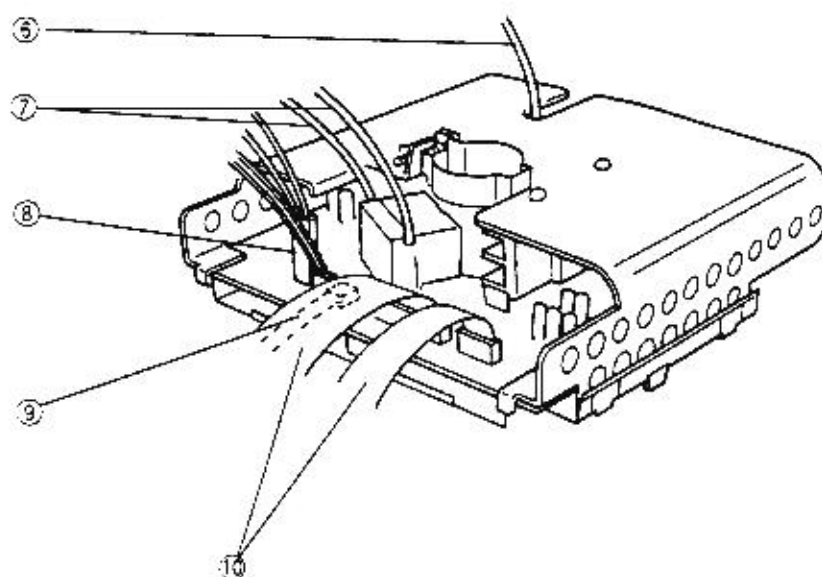
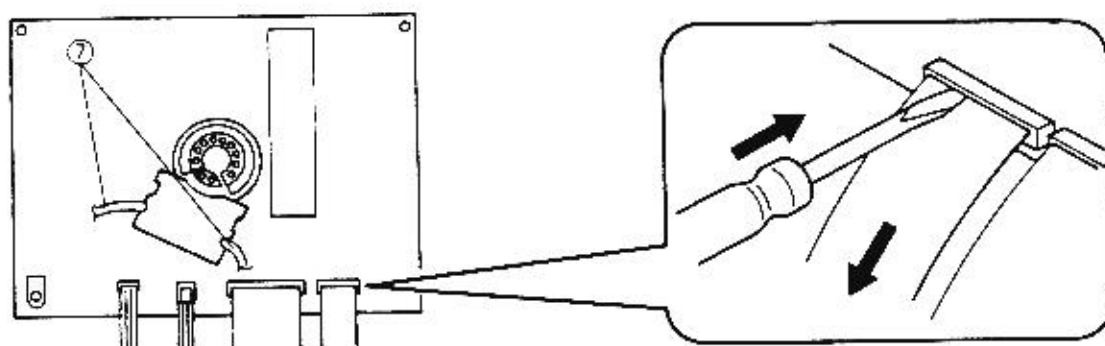
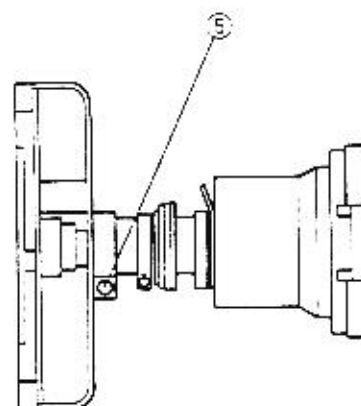


2. Video PCB removal

- 1) Remove the four screws ④ securing the shield cover.
- 2) Desolder (B) and Remove the shield cover (A).

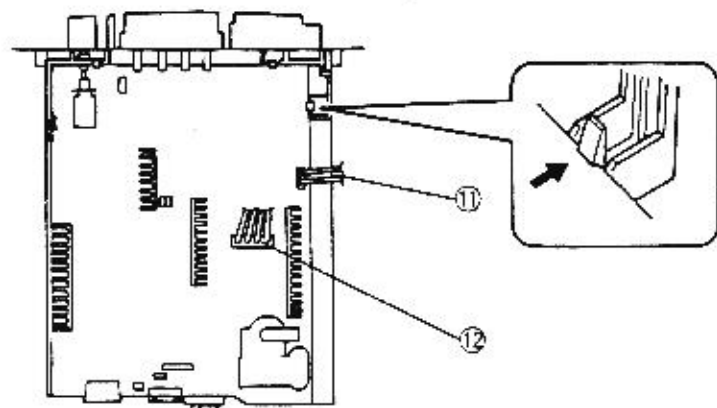
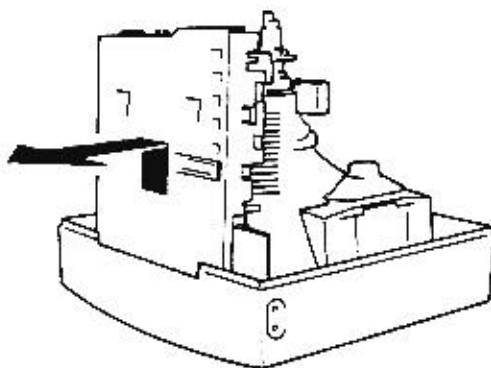
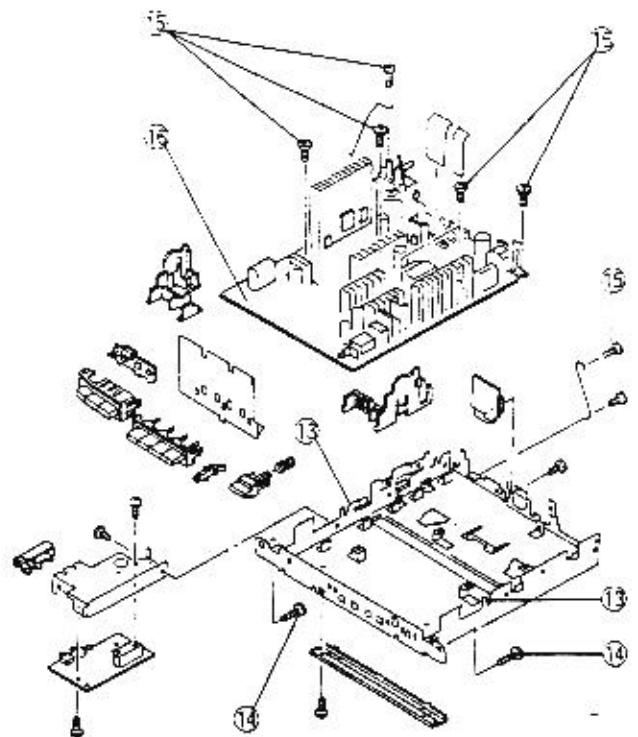


- 3) Loosen the screw 5 securing the CRT neck and the shield case
- 4) Remove the PCB block from the CRT.
- 5) Desolder and remove the N382B connector 6.
- 6) Remove the two focus leads 7 after pulling up the focus lead securing lever.
- 7) Remove the ground connector 8 (N106) connected to the PCB
- 8) Remove the two flexible PCBs 9.
- 9) Remove the N104B connector 10.
- 10) Remove the PCB from the shield case.



3. Main PCB Removal

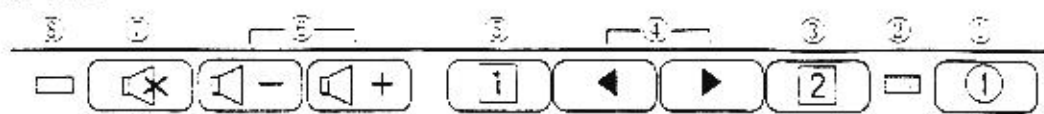
- 1) Remove the connector ⑪ (N802) of the degauss coil.
- 2) Remove the DY connector ⑫
- 3) Remove the anode cap.
- 4) Remove the two ground connector ⑬
- 5) Move the CRT face down and remove the two screws, ⑭ securing the bottom fitting metal.
- 6) Remove the fitting metal and the PCB from the cabinet
- 7) Remove eight screw ⑮ securing the fitting metal and PCB
- 8) Remove the PCB ⑯ with the figure referenced.



CONTROL LOCATION (MONITOR SECTION)

Basic operation of parts

Control panel



- ① Power switch To switch on and off the monitor.
- ② Pilot LED Light up green when power is ON - turns yellow in power management mode.
- ③ OSD 2 key Selected or switch change data.
- ④ OSD ◀ ▶ key (1) To display contrast menu ; to adjust contrast
(2) To adjust level of selected item
- ⑤ OSD 1 key To display main menu ; quit menu. Store change data in the memory.
- ⑥ Volume key Adjusts the sound volume for the built-in speakers and the headphone terminals.
- ⑦ Mute key Turns the built-in speakers and the headphone terminals sound ON and OFF.
- ⑧ Mute LED Indicates that the built-in speakers are in mute operation.

Examples of on-screen operation

A. Contrast adjustment

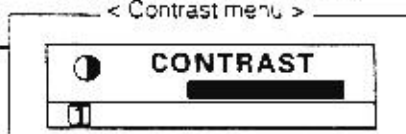
Display changes

Steps of operation

On-screen display changes



1. Display the contrast adjustment menu using the ◀ key or ▶ key.



2. Set the desired state using the ◀ key or ▶ key. If the [1] key is pressed, the set data is stored in the memory and the menu screen is cleared.

B. H. size adjustment

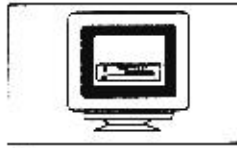
Display changes

Steps of operation

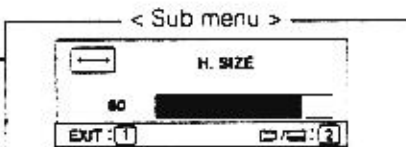
On-screen display changes



1. Call the main menu on the screen by pressing the [1] key.



2. Move to cursor to H. SIZE using the ◀ key or ▶ key, then press the [2] key to select.



3. Set the desired state using the ◀ key or ▶ key. If the [1] (EXIT) key is pressed, the set data is stored in the memory and the menu screen is cleared.

Main menu



CONTRAST	BRIGHTNESS	DEGAUSS	
H. POSITION	H. SIZE	V. POSITION	V. SIZE
PINCUSHION	TRAPEZOID	PARALLELOGRAM	ROTATION
COLOR ADJUST	DISPLAY FREQUENCY	VIDEO LEVEL	LANGUAGE
Recall			
CONTRAST 2			

CAUTION FOR ADJUSTMENT AND REPAIR

1. Degaussing is inevitably required for purity adjustment or convergence adjustment.
2. If you check or adjust an electrical specification or function, more than 20 minutes burn-in is required.
3. Reforming of the lead wire is required after repair is completed.
4. Prior to starting work, be sure to check that the input signal is at the specified timing and that the polarity is as specified in all modes.
5. Brightness control: After mounting the rear cover, brightness tends to decrease about 5 cd/m^2 on a flat white field and about 1 cm/m^2 on a white raster field. This should be taken into consideration.
6. Brightness stabilizing time: It takes about 20 to 50 seconds for the brightness to stabilize after turning the power off for 5 seconds (AC). Therefore, care should be taken on this.
7. Aging should be made in white raster of $30 \sim 50 \text{ cd/m}^2$ and raster size of $320 \times 240 \text{ mm}$ before adjusting the ITC.
8. Set the CONTRAST to MAX and BRIGHTNESS to CENTER using the O S D.

CAUTION FOR SERVICING

When servicing or replacing the CRT, high voltage sometimes remains on the anode. Completely discharge high voltage before servicing or replacing the CRT in order to prevent a shock to the service person.

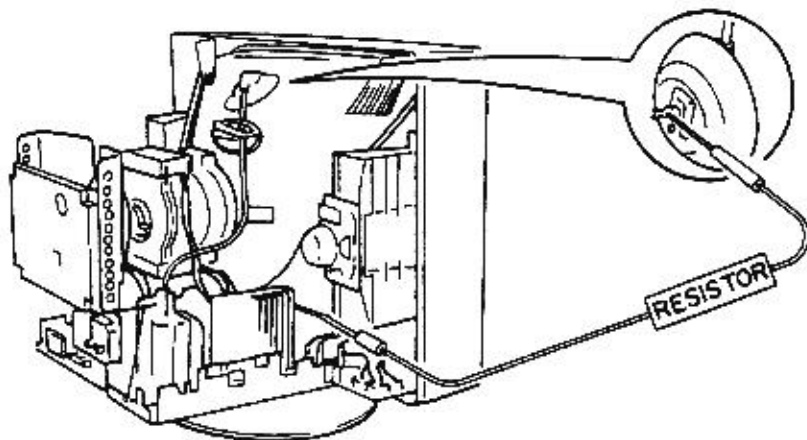
CRT Anode Discharge

1. When you check the CRT anode or replace the CRT, discharge the CRT anode to the external conductive coating (aquadag) of the CRT, especially when checked right after power turn-off.
2. Ground one end of a jumper wire which has a resistor ($30 \text{ k}\Omega < \text{resisting pressure } 100 \text{ M}\Omega$) and connect the other end to the CRT anode.

Note: Grounding must be done first.

This model has a section that does not share a common ground with the power supply section. the different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the time. You may be hit by an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.



ADJUSTMENT AND CHECK PROCEDURE

INTRODUCTION

- This monitor is controlled by a microcomputer. With the exception of purity/convergence/focus everything is digitally adjusted. Therefore, a computer, the dedicated control software, the dedicated interface, a 9~12 V power supply and a signal generator are required for servicing.

TOOLS REQUIRED

- Computer**
The control software is IBM PC compatible only.
- Control Software**
The 17GA chassis can only use the "1769GA-1 adjustment program disk". No other program can access the EEPROM on the monitor. For further information, please contact our sales office.

Interface

The interface is dedicated to work only with the control software and the 17GA chassis. There are no substitutes for this interface. For further information please contact our sales office.

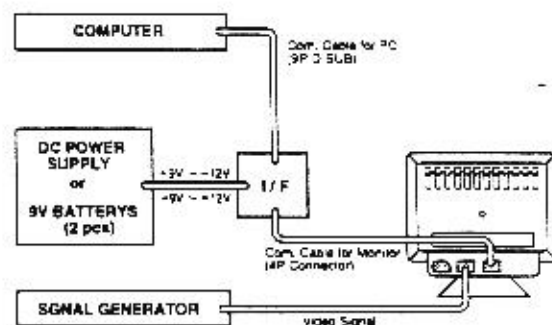
Power Supply

A DC 9~12 V (+9~+12 V/-9~+12 V) power supply is required for operating the interface.

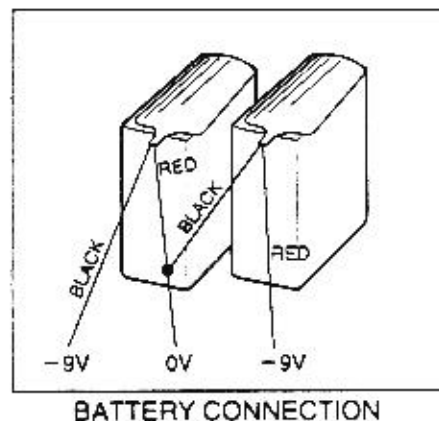
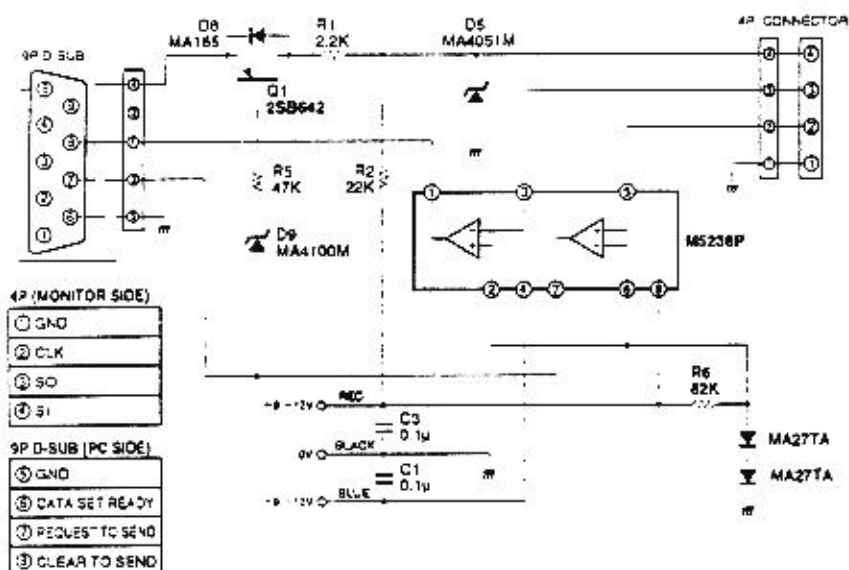
Signal Generator

It is necessary for you to use a signal generator which operates on f= 82 kHz, f= 160 Hz and f= 135 MHz bands.

INTERFACE CONNECTION



INTERFACE SCHEMATIC DIAGRAM



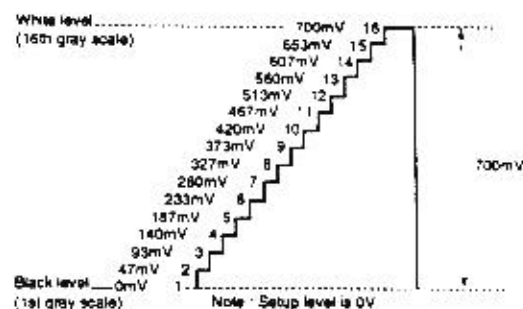
OTHER TOOLS

- Oscilloscope (dual trace)
- Scope probe – Attenuation: 100:1
Attenuation: 10:1
- Digital Voltmeter – Range: 0 to 1000 V DC
Accuracy: 0.1 %
- TV color Analyzer – that reads luminance and chromaticity X and Y coordinates
- Digital High Voltmeter
- AC power supply – Output voltage: 0 to 300 V
- Degaussing coil
- Convergence meter
- Scale
- Double-faced scale
- Microscope – Scale factor: 50
- White lacquer (Paint)

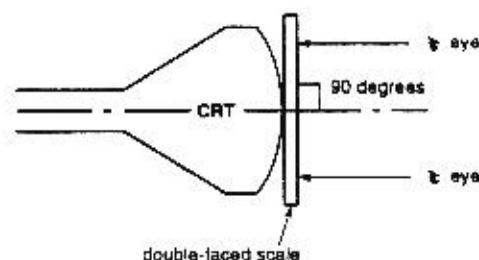
STANDARD CONDITION OF ADJUSTMENT PROCEDURE

- Signal timing : Standard timing 1024 x 768
(See page 5)
- Display pattern : White, full "H" character
- Signal level : V/H: TTL level video: 700 mV
- Input source : AC 120 V, 60 Hz
- Ambient temperature : Room temperature
- Warm-up time : More than 30 minutes
- Brightness control : Center
- Contrast control : Max.
- Magnetic field : Vertical: 40 μ T
Horizontal: 0 μ T
- Signal cable : Attached

Video input signal from PC.



- Use a Helmholtz device to adjust an unit with no horizontal magnetic field and a vertical field of 40 μ T. Inspect the unit under the same conditions.
- The ambient illuminance must be 200 lux.
- Use an external degaussing coil any time the DEGAUSS switch does not remove color shading.
- To check the image width, height, linearity and distortion, proceed as below.



Measure level with respect to tube axis

1. Software operating procedure

- A) Power on the computer
- B) Connect the Communication cable for monitor adjustment
- C) Insert the adjustment disk into the drive.
- D) At the A:\> prompt type "VSR", then press [ENTER].

A function to identify the connected monitor is provided to prevent accidents due to erroneous use of the I7GA chassis program. If this program is used for any monitor other than the I7GA, the message "This monitor is not an I7GA chassis. All further activity has been prevented" is displayed and the operation is stopped.

- E) Refer to the adjustment procedures.

2. Adjustment Program

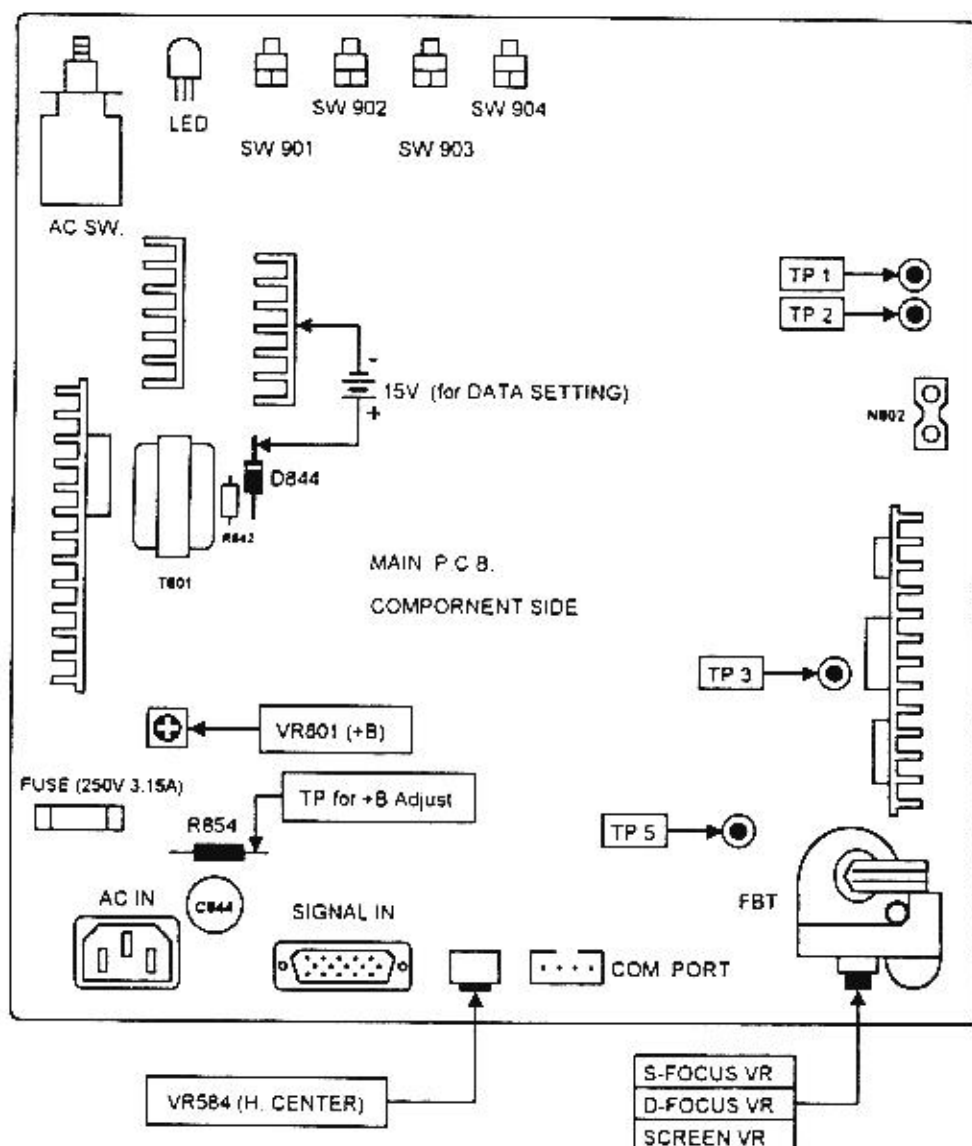
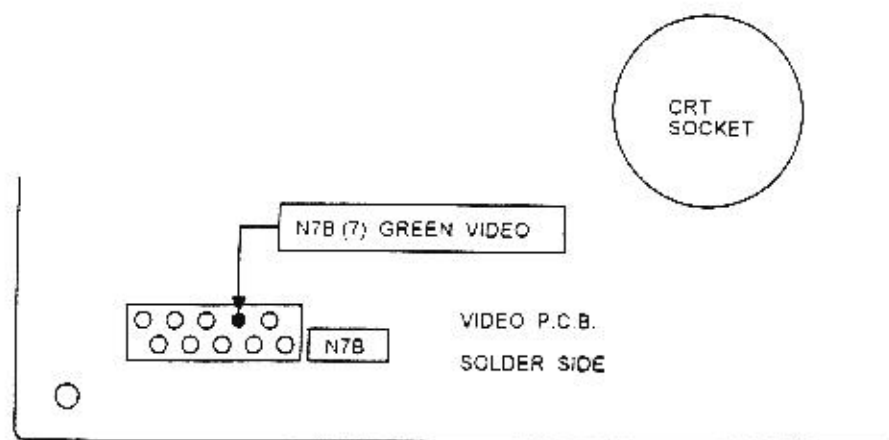
Main Menu of Adjustment Program

<<I7GAADJUST PROGRAM MAIN MENU>> (e: exit) <Ver 1.1>	
1) Load data from FILE	6) Clear User preset
2) Adjust H. OSC freerun	7) Save data to FILE
3) Adjust VSR setting	8) Special ADJUST
4) Adjust OTHER setting	9) Information Service
5) Adjust Factory preset	10) Show Version & Error

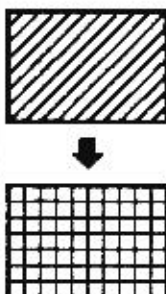
Description of Function of Each Menu

- 1) Load Data from File
This transfers the data from the disk to the EPROM on the monitor.
- 2) Adjust H.OSC Freerun
To guarantee that the full range of horizontal frequencies operate correctly, the reference oscillation frequency should be set.
- 3) Adjust VSR Setting
To guarantee that the full range of horizontal frequencies operate correctly, the reference voltage and the distortion offset data should be set.
- 4) Adjust Other Setting
This is used to control the brightness and color.
- 5) Adjust Factory Preset
Makes adjustments to the factory presets. This data is also referenced for modes other than the preset mode.
- 6) Clear User Preset
Clears the data written in the user preset domain. There is no data in the user presets when the product is shipped from the factory.
- 7) Save Data to File
Transfers the data from the EPROM on the monitor to a data file on a floppy disk or hard drive. The data file can be named anything as long as it is less than 8 characters long.
- 8) Special Adjust
This menu has the following functions
 - ① Related data is automatically set on the basis of adjustment results to save the time for adjustment.
(Example: color adjustment applies only to the 9300 K, while 6550 K and user color data are automatically set.)
 - ② To prevent operation errors in changes of various type of control flags, these flags are automatically returned to the default settings (Final Tune).
- 9) Information Service
Displays the H/V frequencies that is being supplied to the monitor and gives the operational status of the monitor.
- 10) Show Version and Error
Shows the version of the microprocessor in the monitor. Also, if there is an error in the operation of the monitor, the error is displayed on the screen of the PC.

SERVICE ADJUSTMENT CONTROL LOCATION



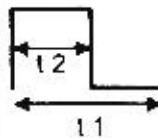
1. Description of Adjustment Method













ITEM Program Menu		<input type="checkbox"/> Test Meter <input type="checkbox"/> Test Point <input type="checkbox"/> Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
A	STANDARD DATA SETTING		A1		Do not connect the power and signal cable to monitor.	
	1) Load data from FILE	<input checked="" type="checkbox"/> D844 - GND Refer to service adjustment control location on page 23	A2		Apply 15V to D844 CATHODE and GND. (Do not apply 5V to IC901. Because IC876 supply 5V and RESET signal to IC901)	
			A3		Set the cell to the menu at left and press <input type="button" value="←"/>	
			A4		A message FILE -> EEPROM FILE NAME (q or Q escape) [] : is displayed. So key in the DACDATA.DAT (when using the standard data) and press <input type="button" value="→"/> .	
			AE		Disconnect 15V cable, then turn on the power switch of the monitor.	
Do not load standard data except when Main P.C.B. and EEPROM are replaced.						
B	+B ADJUST	<input checked="" type="checkbox"/> Digital voltmeter <input checked="" type="checkbox"/> R854 Refer to service adjustment control location on page 23	B1	Mode-2	Check that the input signal to the monitor is [fH 60.0KHz] and [fV 75.0Hz] and press <input type="button" value="←"/> .	98V +2 / -1V
			B2		Make the adjustment to the value shown at right by turning the VR801 on the main PCB.	
C	H. FREE RUN 2) Adjust H. OSC freerun	<input type="checkbox"/> Crosshatch	C1		Set the cell to the menu at left and press <input type="button" value="←"/> .	
			C2		Set the cell to the adjusting mode <u>INTP [0]</u> and press <input type="button" value="←"/> .	
			C3	1	Check that the input signal to the monitor is [fH 29.5KHz] and [fV 48.0Hz] and press <input type="button" value="←"/> .	
			C4		When the screen image has stabilized, press <input type="button" value="→"/> to return to menu of C2.	
			C5	2	Input signal [fH 39.0KHz] and [fV 77.1Hz]	
			C6		Select Adjusting mode <u>INTP [1]</u> , and repeat above procedure.	
			C7	3	Input signal [fH 54.0KHz] and [fV 105.0Hz]	
			C8		Select Adjusting mode <u>INTP [2]</u> , and repeat above procedure.	
			C9	4	Input signal [fH 70.0KHz] and [fV 165.0Hz]	
			C10		Select Adjusting mode <u>INTP [3]</u> , and repeat above procedure.	
			CE		Press <input type="button" value="E"/> to return to main menu.	

Note 1 : Check to be sure that the program disk name is **1769GA-1** before making necessary adjustment.

Note 2 : Unless otherwise specified, the monitor state is as given at right.

Note 3 : The underlined places indicate the adjustment items on the screen of the PC.

ITEM Program Menu	<input type="checkbox"/> Test Meter <input type="checkbox"/> Test Point <input type="checkbox"/> Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
D H. DRIVE DUTY 2) Adjust VSR setting	<input type="checkbox"/> Oscilloscope <input type="checkbox"/> TP2 ~ GND <input type="checkbox"/> Crosshatch <div style="border: 1px solid black; padding: 2px; width: fit-content;">Oscilloscope Range</div> .1 10us/div .2 5us/div .3 5us/div .4 2us/div	D1		Set the cell to the menu at left and press <input type="button" value="F1"/> .	 $t2 - t1 \times 100 =$ 55% $\pm 3\%$
		D2		Set the cell to the adjusting mode <u>INTP [0]</u> and press <input type="button" value="F1"/> .	
		D3	-1	Check that the input signal to the monitor is [fH 29.5KHz] and [fV 48.0Hz] and press <input type="button" value="F1"/> .	
		D4		Set the cell to <u>H. DRIVE DUTY</u> and press <input type="button" value="F1"/> .	
		D5		Make the adjustment to the value shown at right by using <input type="button" value="F2"/> and <input type="button" value="F3"/> .	
		D6		Register by pressing <input type="button" value="F4"/> and return to menu of D2 by pressing <input type="button" value="F1"/> .	
		D7	-2	Input signal [fH 39.0KHz] and [fV 77.1Hz]	
		D8		Select Adjusting mode <u>INTP [1]</u> , and repeat above procedure.	
		D9	-3	Input signal [fH 54.0KHz] and [fV 105.0Hz]	
		D10		Select Adjusting mode <u>INTP [2]</u> , and repeat above procedure.	
		D11	-4	Input signal [fH 70.0KHz] and [fV 165.0Hz]	
		D12		Select Adjusting mode <u>INTP [3]</u> , and repeat above procedure.	
		DE		Press <input type="button" value="F1"/> to return to main menu.	
E H. DRIVE +B 2) Adjust VSR setting	<input type="checkbox"/> Digital voltmeter <input type="checkbox"/> TP1 ~ GND <input type="checkbox"/> Crosshatch	E1		Set the cell to the menu at left and press <input type="button" value="F1"/> .	19.0V $\pm 0.3V$
		E2		Set the cell to the adjusting mode <u>INTP [0]</u> and press <input type="button" value="F1"/> .	
		E3	-1	Check that the input signal to the monitor is [fH 29.5KHz] and [fV 48.0Hz] and press <input type="button" value="F1"/> .	
		E4		Set the cell to <u>H. DRIVE +B</u> and press <input type="button" value="F1"/> .	
		E5		Make the adjustment to the value shown at right by using <input type="button" value="F2"/> and <input type="button" value="F3"/> .	
		E6		Register by press <input type="button" value="F4"/> and return to menu of E2 by press <input type="button" value="F1"/> .	
		E7	-2	Input signal [fH 39.0KHz] and [fV 77.1Hz]	
		E8		Select Adjusting mode <u>INTP [1]</u> , and repeat above procedure.	
		E9	-3	Input signal [fH 54.0KHz] and [fV 105.0Hz]	
		E10		Select Adjusting mode <u>INTP [2]</u> , and repeat above procedure.	
		E11	-4	Input signal [fH 70.0KHz] and [fV 165.0Hz]	
		E12		Select Adjusting mode <u>INTP [3]</u> , and repeat above procedure.	
		EE		Press <input type="button" value="F1"/> to return to main menu.	

ITEM	Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
EHT ADJUST 3) Adjust VSR setting 8) Special ADJUST	◇ Digital voltmeter ▼ TP5 ~ GND □ RGB off (Sync only)	F1 F2 F3 F4 F5 F6 F7 F8 FE	-4	Set the cell to the menu at left and press  Set the cell to the adjusting mode <u>INTP[3]</u> and press  Check that the input signal to the monitor is [H 70.0KHz] and [V 165.0Hz] and press  Move the cell to <u>EHT</u> and press  Make adjustment to the value shown at right by using  and  Register by pressing  and return to the main menu by pressing  Set the cell to the menu at left and press  Select the <u>5: EHT DATA CALCULATION</u> from the menu. The computer will then display : Calculate EHT data automatically · OK ? Press  to return to menu of F8, press  to return to the main menu (When selected above menu calculation is done automatically for -1, -2 and -3)	146.0V ±1V
H. CENTER	□ RGB off (Sync only)	G1 G2 G3	Mode-8	Set the Brightness to MAX. Check that the input signal to the monitor is [H 57.9KHz] and [V 71.8Hz]. Make the adjustment as shown at right by turning the VR854 on the main PCB.	 Set the raster to the center with respect to the bezel.

ITEM	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
H/V. SIZE, POSI and V. PCC (1) 5: Adjust Factory preset	□ Crosshatch	H1 H2 H3 H4 H5 H6 H7 HE	Mode-1 Mode-2 Mode-3	<p>Set the cell to the menu at left and press <input type="checkbox"/>.</p> <p>Check that the input signal to the monitor is [fH 31.5KHz] and [fV 60.0Hz] and press <input type="checkbox"/>.</p> <p>Set the cell to following items, press <input type="checkbox"/> and make the adjustment to the value shown at right by using <input type="checkbox"/> and <input type="checkbox"/>.</p> <p>① <u>H. SIZE</u> ② <u>H. POSI</u> ③ <u>V. SIZE</u> ④ <u>V. POSI</u> ⑤ <u>V. PCC</u> ⑥ <u>PARALLEL LOGRAM</u> ⑦ <u>TRAPEZOID</u></p> <p>After adjusting the above, return to menu of H2 by using <input type="checkbox"/> and <input type="checkbox"/>.</p> <p>Input signal [fH 60.0KHz] and [fV 75.0Hz] and repeat above procedure.</p> <p>After adjustment, go to H7 by using <input type="checkbox"/> and <input type="checkbox"/>.</p> <p>Input signal [fH 63.7KHz] and [fV 60.0Hz], and repeat above procedure.</p> <p>After adjustment, return to the main menu by using <input type="checkbox"/> and <input type="checkbox"/>.</p>	<p>H : 300mm ±5 V : 225mm ±5</p> <p>H/V Posi : Center V. PCC : Best point</p> <p>H : 300mm ±5 V : 225mm ±5</p> <p>H : 286mm ±5 V : 229mm ±5</p>
H/V. SIZE, POSI and V. PCC (2) 3) Adjust VSR Setting	□ Crosshatch	I1 I2 I3 I4 I5 I6 I7 I8 I9 I10 I11 IE	-1 -2 -3 -4	<p>Set the cell to the menu at left and press <input type="checkbox"/>.</p> <p>Set the cell to the adjusting mode <u>INTP [0]</u> and press <input type="checkbox"/>.</p> <p>Check that the input signal to the monitor is [fH 29.5KHz] and [fV 48.0Hz] and press <input type="checkbox"/>.</p> <p>Set the cell to following items, press <input type="checkbox"/> and make the adjustment to the value shown at right by using <input type="checkbox"/> and <input type="checkbox"/>.</p> <p>① <u>H. SIZE</u> ② <u>H. POSI</u> ③ <u>V. SIZE</u> ④ <u>V. POSI</u> ⑤ <u>V. PCC</u> ⑥ <u>V. LIN (S)</u></p> <p>After adjusting the above, return to menu of I2 by using <input type="checkbox"/>.</p> <p>Input signal [fH 39.0KHz] and [fV 77.1Hz] Select Adjusting mode <u>INTP [1]</u>, and repeat above procedure.</p> <p>Input signal [fH 54.0KHz] and [fV 105.0Hz] Select Adjusting mode <u>INTP [2]</u>, and repeat above procedure.</p> <p>Input signal [fH 70.0KHz] and [fV 165.0Hz] Select Adjusting mode <u>INTP [3]</u>, and repeat above procedure.</p> <p>After adjustment, return to the main menu by press <input type="checkbox"/>.</p>	<p>H : 300mm ±5 V : 225mm ±5</p> <p>H/V Posi : Center V. PCC : V. LIN : Best point</p>

ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
CRT CUT-OFF 4) Adjust OTHER setting	◇ TV Color Analyzer II	J1	Mode-2	Set the Contrast to MAX. Brightness to Center and Color is 9300k using the OSD.	
	□ RGB Off (Sync only)	J2		Check that the input signal to the monitor is [fH 60.0KHz], [fV 75.0Hz] and turn off the RGB signal	
		J3		Set the cell to the menu at left and press	
		J4- J11		Make the adjustment R, G and B Low Light by using , and Screen VR to CRT cut-off Please refer to flow chart for this adjustment on page 30.	
		J12 J13		Change to the pattern at left. Adjust the screen VR so the 2nd level of gray appears slightly.	
BRIGHTNESS COLOR ADJUST	□ White window (5cm×5cm at center)	J14		Change to the pattern at left.	Y=120 cd/m ² x=0.281 ±0.15 y=0.311 ±0.15
		J15		Move the cell to the following items and make the adjustment to the value shown at right by using and .	
				<u>R. SUB CONT 9300K</u> <u>G. SUB CONT 9300K</u> <u>B. SUB CONT 9300K</u>	
		J16 J17		Set Contrast to MIN using the OSD Move the cell to the following items and make the adjustment to the value shown at right by using and .	
				<u>R. LOW LIGHT 9300K</u> <u>G. LOW LIGHT 9300K</u> <u>B. LOW LIGHT 9300K</u> Adjust two colors only out of above three as shown in on page 30.	
ABL 1.0V ADJUST 8) Special ADJUST	□ White flat field (full window)	J18		Change to the pattern at left.	Y=110 cd/m ²
		J19		Move the cell to <u>ABL 9300K</u> and make the adjustment to the value shown at right by using and .	
	□ White window (5cm×5cm at center) 1.0V p-p video*	J20		Press to return to main menu.	Y=120 cd/m ²
		J21		Change to the pattern at left.*	
		J22		Set the cell to the menu at left and press .	
		J23		Select the <u>1 VIDEO 1.0Vpp ADJUST</u> from the menu.	
		J24		Set Input Video Level 1.0V using the OSD of the monitor.	
		J25		Make the adjustment to the value shown at right by using and .	
		J26		Press to return to menu of J19, press to return to the main menu.	
		JE			
Should make Final Tune after this adjustment refer to item L on page 31.					

ITEM Program Menu		<input type="checkbox"/> Test Meter <input type="checkbox"/> Test Point <input type="checkbox"/> Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
K	FOCUS	<input type="checkbox"/> Character	K1	MODE-2	Check that the input signal to the monitor is [H 60.0KHz] and [V 75.0Hz].	
			K2		Make the corner sections of the screen optimum by turning D-FOCUS VR on the FBT.	
			K3		Make the center section optimum by turning S-FOCUS VR on the FBT.	
			K4		Repeat K2 and K3 to make it optimum.	
L	FINAL TUNE 8) Special ADJUST		L1		Set the cell to the menu at left and press <input type="checkbox"/> .	
			L2		Select the 9 FINAL TUNE from the menu. (Step 1):Data tuning. This messages will appear : <loading EEPROM data> ...end <tuning EEPROM data> ... end <saving data to EEPROM> ... end <RECALL data - PRESET data> wait a moment	
			L3		(Step 2):Erase user preset data. Erase All ' user preset data OK ? > Press <input type="checkbox"/> <input type="checkbox"/> , go to L6.	
			L4		(Step 3):Calcalate color data. COLOR 6550K data OK ? >, press <input type="checkbox"/> <input type="checkbox"/> .	
			L5		USER COLOR data OK ? >, press <input type="checkbox"/> <input type="checkbox"/> .	
			L6		ABL data OK ? >, press <input type="checkbox"/> <input type="checkbox"/> .	
			L7		finished . (Hit return key) Press <input type="checkbox"/> , go to L8.	
			L8		(Step 4):Set brightness data and flag. BRIGHT click data OK ? >, press <input type="checkbox"/> <input type="checkbox"/> .	
			L9		BRIGHT min./max. limiter automatically OK ? >, press <input type="checkbox"/> <input type="checkbox"/> .	
			L10		end <SET FLAG> wait a moment ... end tune end . Hit return key ! Press <input type="checkbox"/> , return to menu of L2.	
M	DATA SAVING 7) Save data to file		M1		Set the cell to the menu at left and press <input type="checkbox"/> .	
			M2		Key in the file name after [] : Use serial number as a file name (EXAMPLE : FF5110001 = "F5110001 DAT")	

2. Purity adjustment

The CRT is an ITC assembly. However, here is the explanation for readjustment just in case.

If the color shading is apparent, make the following adjustment.

2.1

(1) Verify that no unusual magnetic fields are near the Display unit (magnetic screwdrivers, table magnets, etc.). If possible, use a wooden workbench for this procedure.

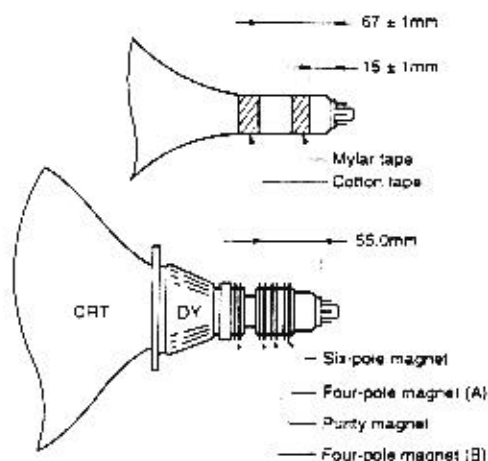
(2) Degauss the magnetism of chassis and CRT with external degaussing coil.

(3) Adjust the purity magnet until each of the red, green and blue channels is free of color shading.

Make the following adjustment if color shading cannot be corrected by the above, or if the CRT or deflection yoke has been replaced.

2.2.

(1) Keep the convergence yoke and deflection yoke in the positions shown below.



CY tightening torque: 8 ± 2 kgf-cm

DY tightening torque: 18 ± 2 kgf-cm

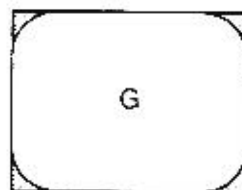
(2) Make sure that this adjustment is done later than 30 minutes after power on.

(3) Degauss the magnetism of chassis and CRT with an external degaussing coil.

(4) Verify that static convergence is roughly matched. If it is misaligned, adjust static convergence of Red color and Blue color with Four-pole magnet A. For this adjustment Four-pole magnet B which is with the deflection yoke must be put together.

(5) Remove the wedge from the deflection yoke, and put the deflection yoke fully to the front.

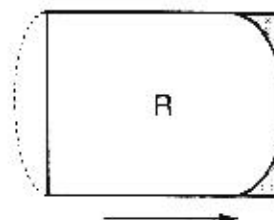
(6) Display green color solely with the signal generator. Adjust the purity magnet so that the center of the screen displays a pure green disk. Slide the deflection yoke rearward until the four corners are shaded and check the area's uniformity.



(7) After the adjustment of step 5, readjust the static convergence if some gap was found.

Static convergence alignment for this step is to be performed with Four-pole magnet A and Six-pole magnet.

(8) Display red disk. Adjust the purity magnets such that the red disk is at the center of the screen simultaneously. If red is shifted, move its position to the opposite direction.



(9) Display Green again.

Slide the deflection yoke rearward until the screen appears green on the whole, and fasten it there.

(10) Confirm purity in each direction by rotating the set to the East, West, South, and North after degauss by external degaussing coil.

(11) If magnetism remains even after the adjustment, use the compensation magnet to obtain purity.

The final confirmation method for purity

In the natural magnetic field, rotate the monitor to the East, West, South, and North.

The earth's magnetic field may cause magnetism on the monitor. Confirm that the automatic degaussing circuit built in the monitor can erase the amount of magnetism which was introduced with the above rotation.

3. Convergence adjustment

The CRT is an ITO assembly; however, here is the explanation for readjustment just in case.

- (1) Make sure that this adjustment is done 30 minutes or later after power on. Check that the general ability coarse adjustment and purity adjustment are finished.
- (2) Degauss the magnetism of chassis and CRT with the degaussing coil. (CRT board also)
- (3) Apply mixed crosshatch signals of red and blue from the signal generator. Nudge the deflection yoke to equal its inclination up and down, right and left with a temporary wedge between CRT and the top of the yoke.
- (4) Match the red and blue images at the center of the screen by rotating the Four-pole magnet A. (See STEP-1 in figure for examples). For this adjustment, Four-pole magnet A should be put together.
- (5) Apply mixed crosshatch signal of red, blue and green from the signal generator.
- (6) Match the red, green and blue images at the center of the screen by rotating the Six-pole magnet. (See STEP-2 in figure for examples).
- (7) If lines are twisted either to the left or to the right (See the STEP-3 in figure for examples) perform the following:
 - a. Use Four-pole magnet B to shift convergence of horizontal lines by 5 to 6 mm at the center of the screen. (For twisted lefthand lines, shift blue line downward and red line upward. For twisted righthand lines, shift red line downward and blue line upward. Do not shift convergence of vertical lines.)
 - b. Realign convergence with Four-pole magnet A.
- (8) Loosen the deflection yoke fastening screw and gently nudge the yoke up and down to achieve the best overall convergence on the edges of the screen. (See STEP-4 in figure for examples). Insert wedge at the top of the deflection yoke so that the convergence will not deviate due to an unsteady deflection yoke.
- (9) Gently nudge the yoke from side to side to achieve the best overall convergence on the edges of the screen. (See STEP-5 in figure for examples). Insert wedges at the left side and right side of the deflection yoke so that the convergence will not deviate due to an unsteady deflection yoke. (Do not apply silicon adhesive to the wedges to prevent them from slipping out).
- (10) Check that the image is horizontal. If needed, rotate the deflection yoke.
- (11) Recheck the purity adjustment. If purity was adversely affected repeat the purity adjustment, then recheck convergence when finished.
- (12) Retighten the deflection yoke fastening screw. Do not overtighten the screw, as this can damage the CRT.

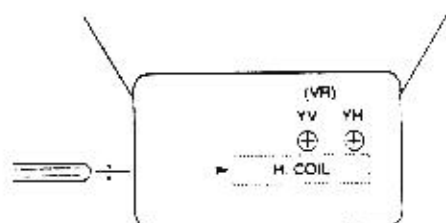
Tightening torque: 18 ± 2 kgf-cm

- (13) Align the horizontal line convergence at the center of the screen with the Differential coil. (See STEP-6 in figure for examples).
- (14) Align the horizontal line convergence at the corner and of the screen with the Differential resistor VR-YV. (See STEP-7 in figure for examples).
- (15) Align the center vertical line convergence at the corner of the screen with the Vertical Isotropic Astigmatism resistor VR-YH. (See STEP-8 in figure for examples).
- (16) Recheck convergence at the center of the screen. If needed, realign with the Four-pole magnet A and the Six-pole magnet.
- (17) Insert wedges as shown in STEP-9 of figure (at the top, bottom, and right side of the deflection yoke). Secure them with silicon adhesive and polyester tape. Remove any temporary wedges while keeping convergence aligned.
- (18) If the convergence on the fringe areas is still not acceptable, place one or more Permalloys around the funnel to achieve the best effect. Then press these Permalloys onto the funnel. Verify convergence around all edges of the screen. (See STEP-10 in figure for examples).

NOTE

In the above step, do not place the Permalloys closer than 20 mm from the HV anode cap. Do not tape them over any paper labels or secure them with silicon adhesive.

- (21) After completion of adjustment, apply locking paint to the movable portions of the deflection and convergence yokes to secure them.
- (22) Make adjustment so that the value of white window pattern from the signal generator is below that under the condition of 100 cd/m² brightness at the standard condition.



Adjustment part	Misconvergence pattern Wedge inserting position
Four-pole magnet A	STEP-1
	STEP-2
Four-pole magnet B	STEP-3 for example (lefthand) with four-pole magnet B with four-pole magnet A
Deflection yoke	STEP-4 Rear view of the CRT

Adjustment part	Misconvergence pattern Wedge inserting position
Deflection yoke	STEP-5 Rear view of the CRT
Differential coil	STEP-6
Differential resistor VR-YV	STEP-7
Differential resistor VR-YH	STEP-8
Permalloy	STEP-9 Wedge spacing and how to tape
	STEP-10

TECHNICAL INFORMATION FOR DDC

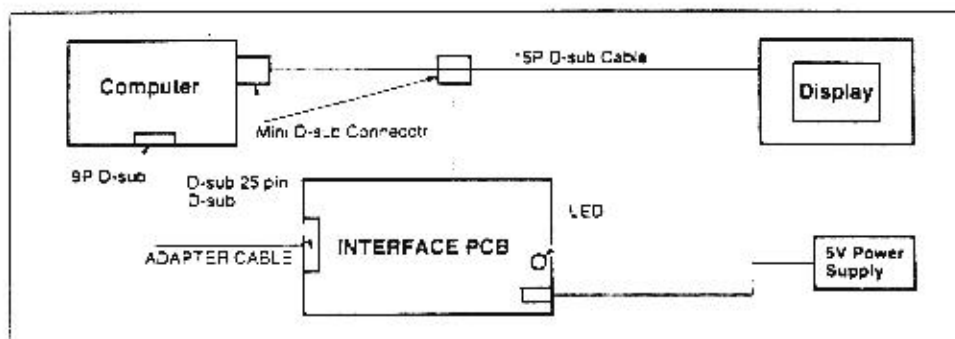
- It must be noted that this monitor is designed to be applicable to DDC1 communication. The following points are different from ordinary monitors.
 - Use the signal cable which is furnished as an accessory (applicable to DDC1) only.
 - When reading a PCB on which RCM for DDC1 is mounted, data writing is required.
Proprietary interfacing and software is required for reading or writing the data. Please contact our sales office for further information.
In addition to the above, a computer applicable to WINDOWS and a 5V power supply unit are required.
- DDC1 Data Read/write System

1. Communication jig

(1) The composition of Communication jig

- Interface PCB.
- Adapter cable (D-SUB 25P - 9P)
- 15P D-SUB cable

(2) Connection diagram for communication jig.



(3) Procedure to turn on the power:

- Make connections as shown above.
- Turn on the computer.
- Turn on the power supply of communication jig.
- Turn on the power supply of the MONITOR.

(Note) If the above-mentioned operation is normal, LED of the communication jig turns green after step (4).

If this LED is red, repeat steps (3) and (4)

(4) Confirmation of DDC mode

LED is mounted on the communication jig. According to its color, the DDC mode can be found.

- | | |
|------------------------|---------------------|
| - When LED is green. | DDC1 mode. |
| - When LED is orange. | DDC2B mode. |
| - When LED is red. | Transmission error. |
| - When LED is not lit. | Obsolete. |

2. Preliminary arrangements for using DDC data read/write software

(1) Copy DDC WRITE. EXE from floppy disk to hard disk drive (Name: \ View Tool Directory).

(2) Register DDC data read/write software (DDCWRITE.EXE) in the icon.

- Click the menu bar "Icon" of the program manager.
- Select "register and group create" from the pull down menu.
- Select "group create."
- Name the group ViewTool and register the group.
- Repeat (1) and (2) again and select "Icon registration."
- Enter "DDC1/2B" for [Title] and "Hard disk drive name: \ ViewTool\DDCWRITE. EXE" for [Command line]. Then select [OK]

3. How to use DDC data read/write software.

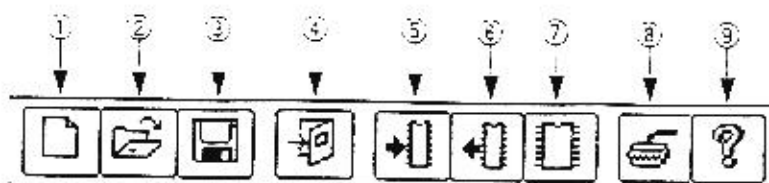
(1) Start the DDC data read/write software.

Double-click on the "DDC1/2B" Icon in the View Tool group.

(2) Meaning of a button displayed.

The tool bar indicates the nine icons shown below.

These icons are explained, from left to right



- Icon 1 : Initialization of screen display contents.
 Icon 2 : File is opened and displayed on the screen.
 Icon 3 : Data is stored in a file.
 Icon 4 : Exit the DDC data read/write software.
 Icon 5 : Data displayed on screen is written to EEPROM.
 Icon 6 : Contents of EEPROM are displayed on the screen.
 Icon 7 : Contents of EEPROM are compared with the data displayed on the screen.
 Icon 8 : Communication port setting.
 Contents of setting : PORT → Using Communication port No.
 Baud rate → 9600, Data → 8 bits, Parity → Nil, Stop → 1 bits
 Icon 9 : Version information display.

- (3) Using the tool bar explained in (2) above, write data to EEPROM and do reading operations.
 A pop-up window may be displayed; in such case, select according to the message.

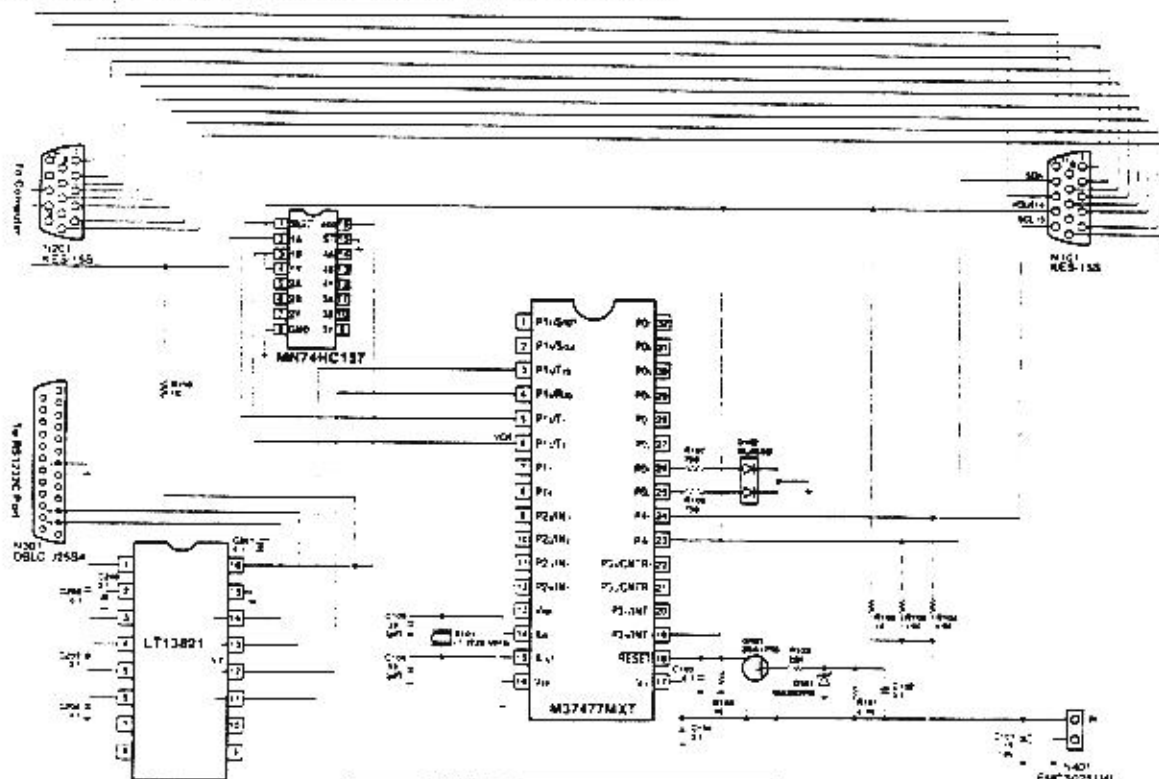
(Example 1) EEPROM data is displayed on the screen.

- 1 Click on the icon (6th from the left) in the tool bar, with the arrow pointing from the memory chip.
- 2 Decide whether reading is started in DDC1 mode or DDC2B mode.
- 3 Select START.

(Example 2) Data displayed on the screen is written in EEPROM.

- 1 Click the icon (5th from the left) in the tool bar with the arrow pointing toward the memory chip.
- 2 Select START

SCHEMATIC DIAGRAM FOR INTERFACE

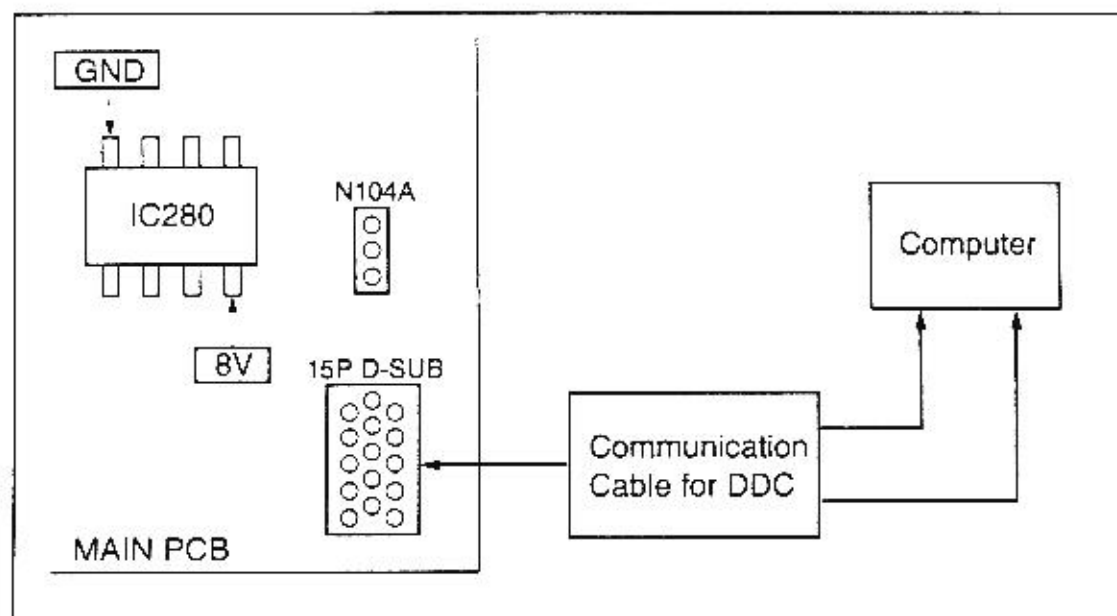


• Data Management

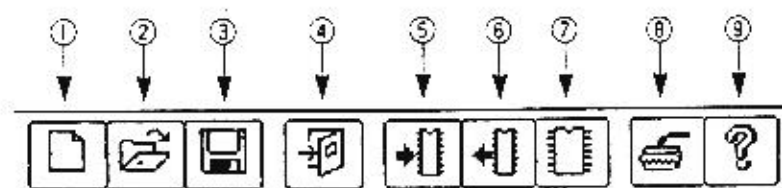
If the main PCB has been replaced, the data of the replaced PCB must be rewritten. The data rewriting procedures are as follows.

- (1) Connect the communication cable for DDC to the defective PCB (15P D-SUB) and PC (9P D-SUB).
- (2) Start the DDC control program.
- (3) Connect the 5-V power line to IC260 (8) and GND to IC260 (4) of the defective PCB respectively.
- (4) Click on ICON (6) in the window to save the data from the monitor.
- (5) Click on ICON (3) to enter file names and save them on the **new disk**.
- (6) Disconnect the 5-V power line and D-SUB connector from the defective PCB.
- (7) Switch on the monitor whose main PCB has been replaced and connect the D-SUB connector.
- (8) Click on ICON (2) to enter the same file names as in step (4).
- (9) Click on ICON (5) to load the data into the monitor.
- (10) Click on ICON (6) and confirm that the data has been rewritten.

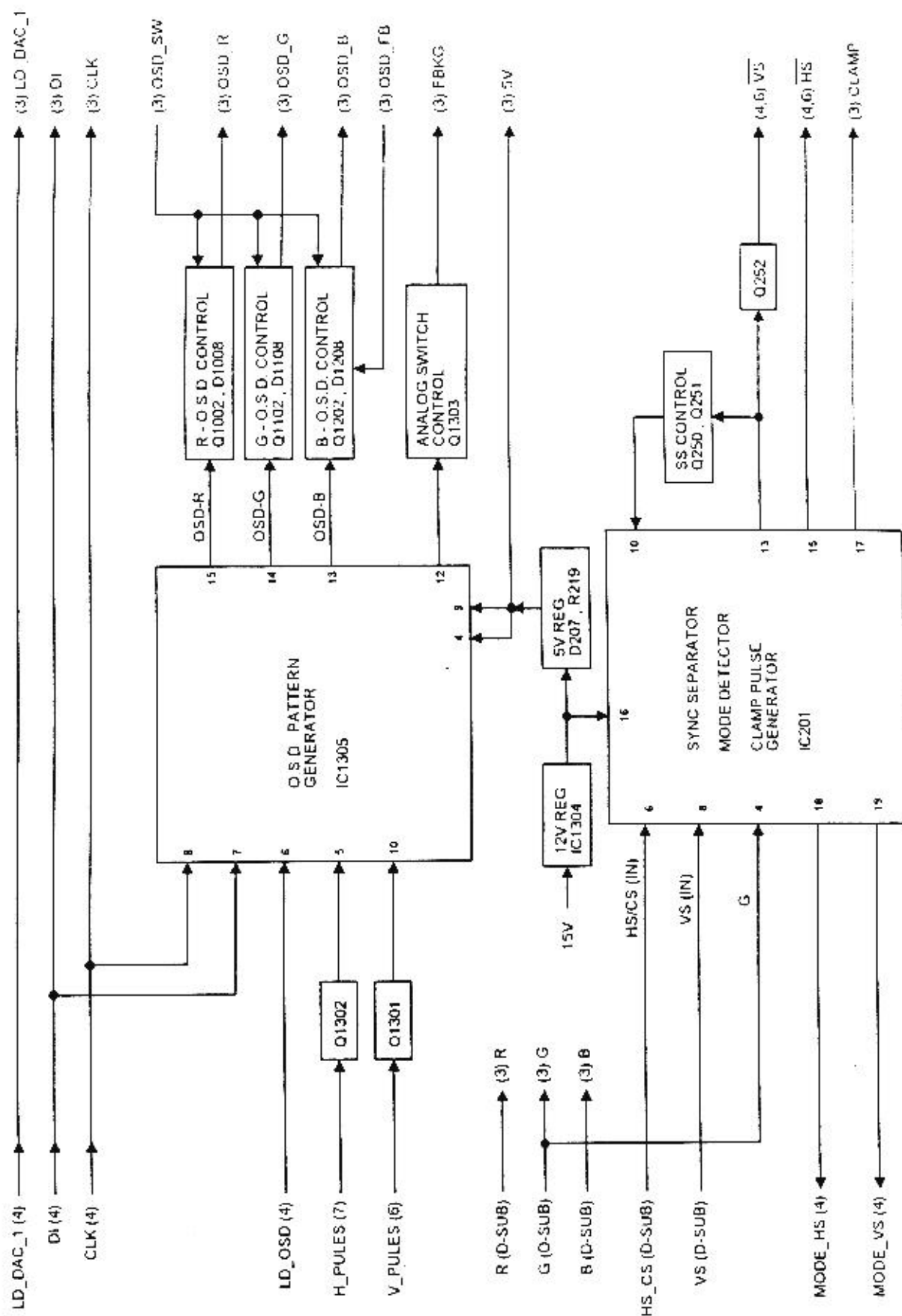
Connection Diagram



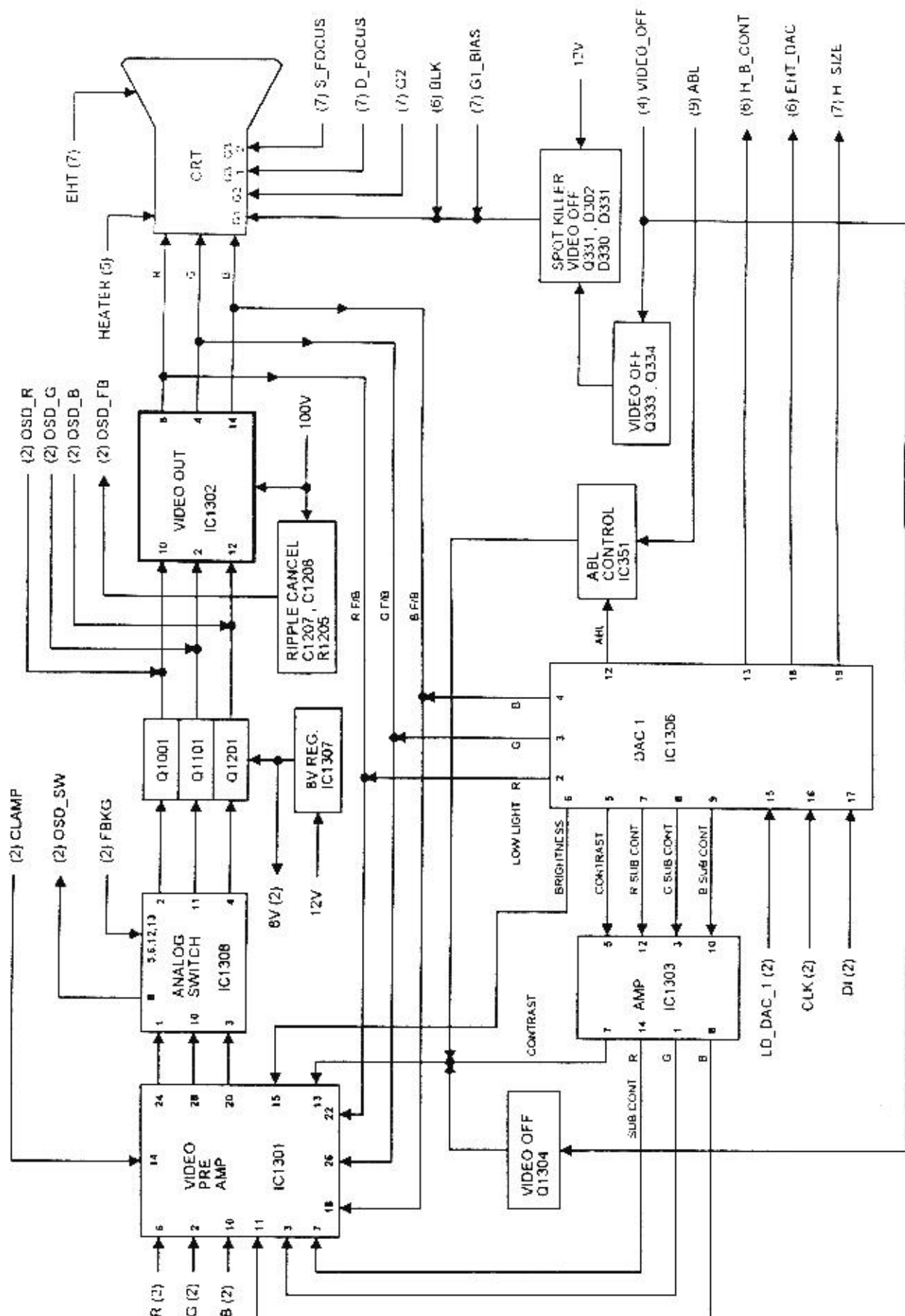
ICON



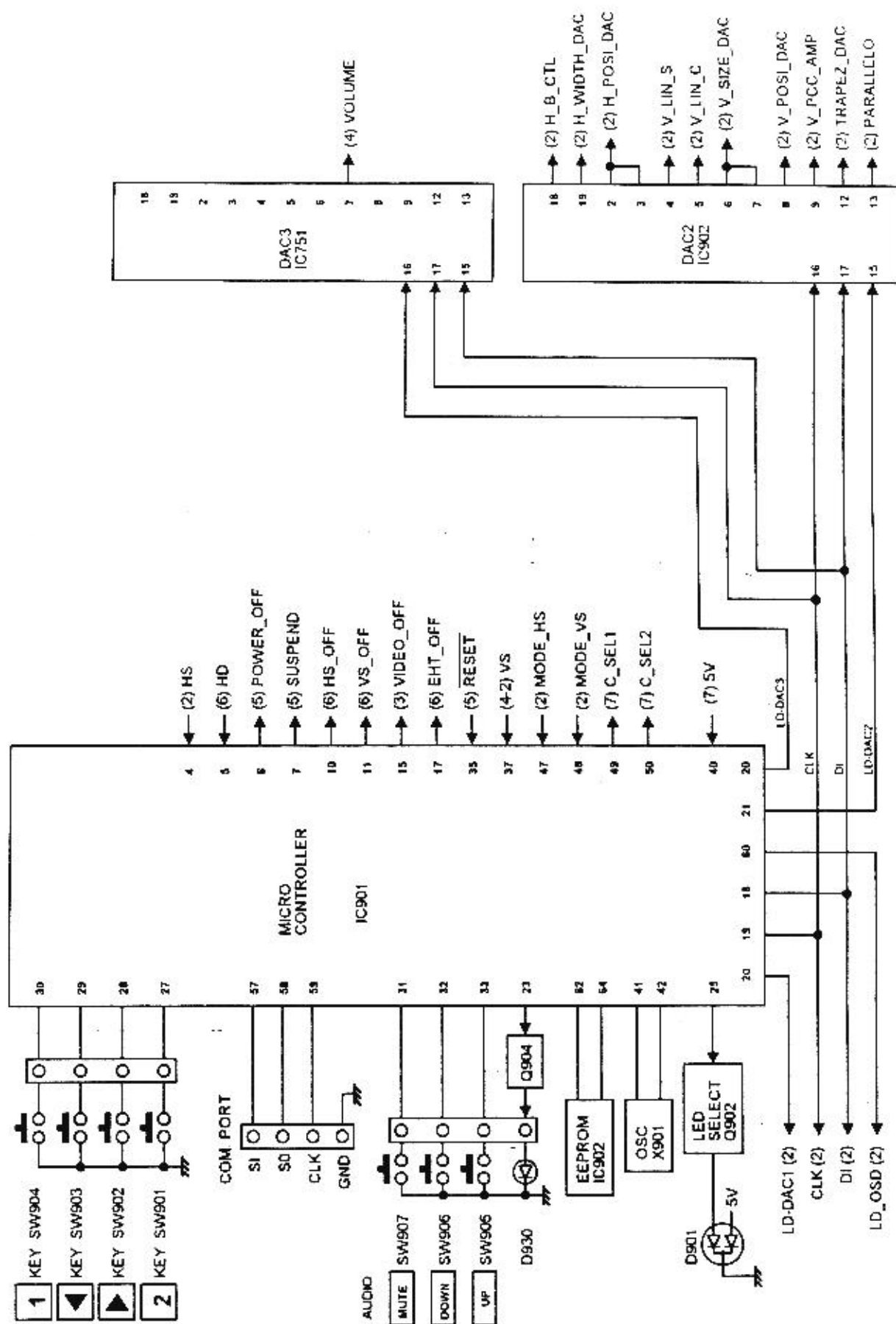
SHEET (2) / SYNC SEPARATE / O.S.D. GENERATOR



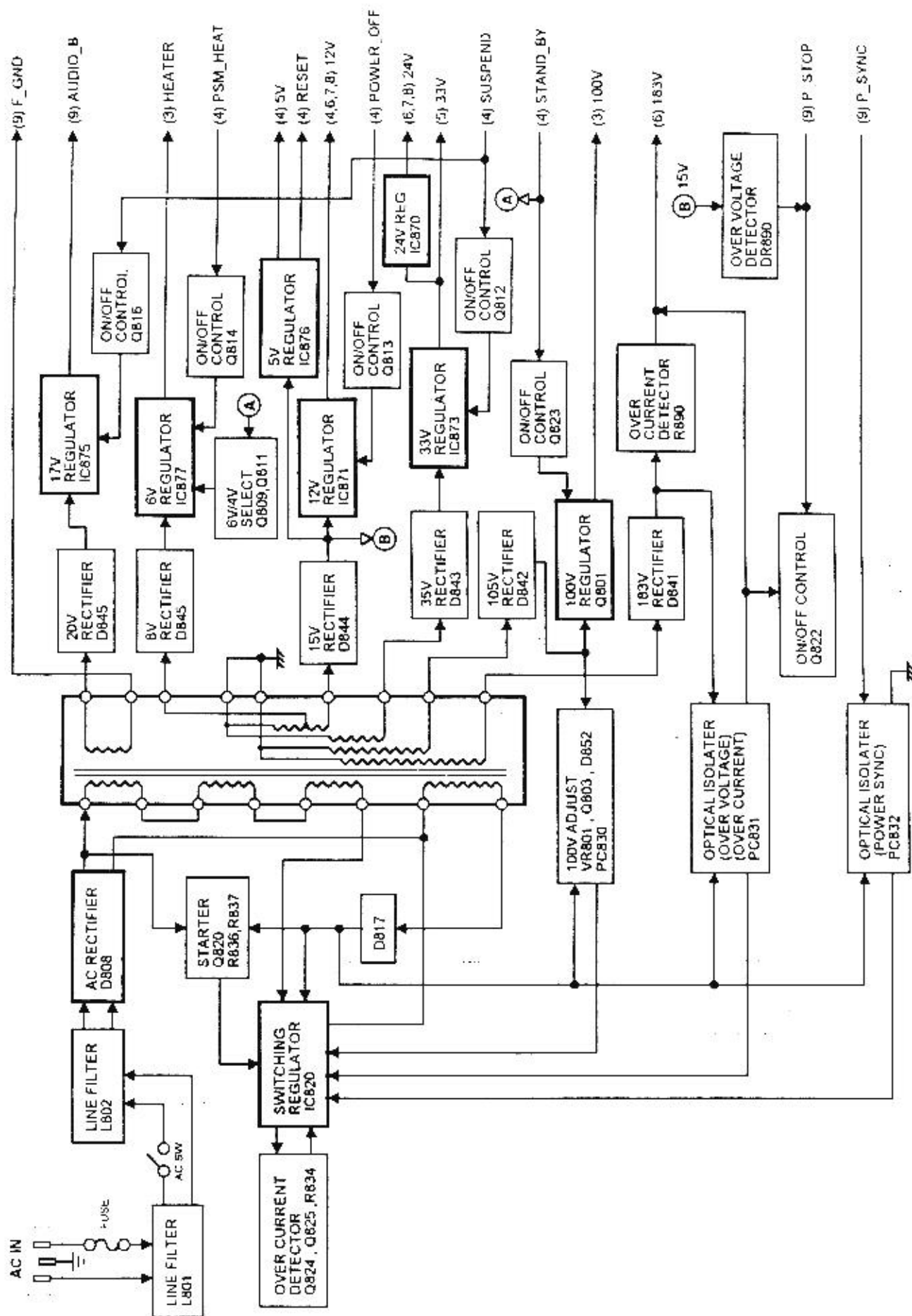
SHEET (3) / VIDEO OUT



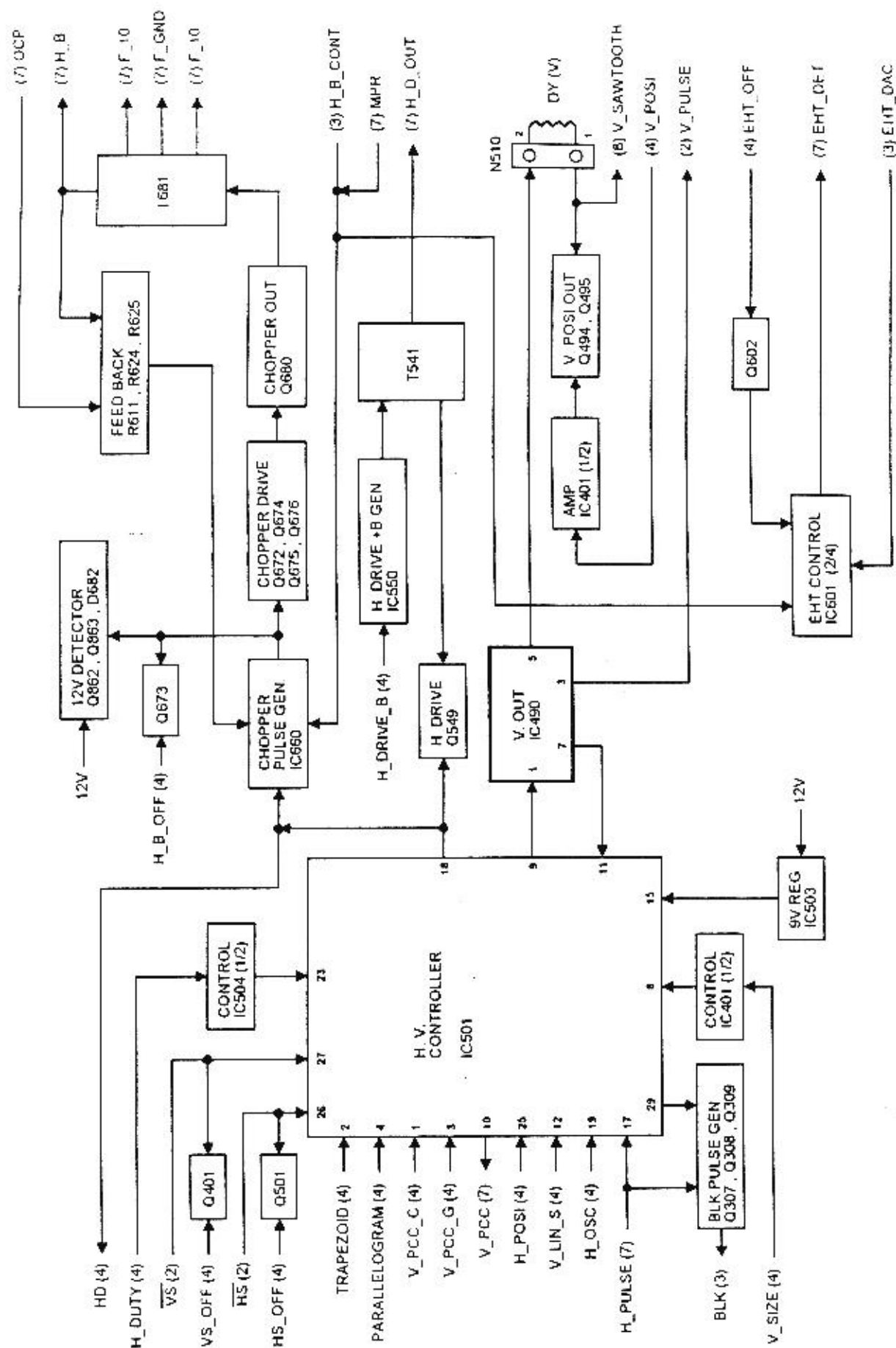
SHEET (4) / MICRO CONTROLLER / DIGITAL ANALOG CONVERTER for HV5F



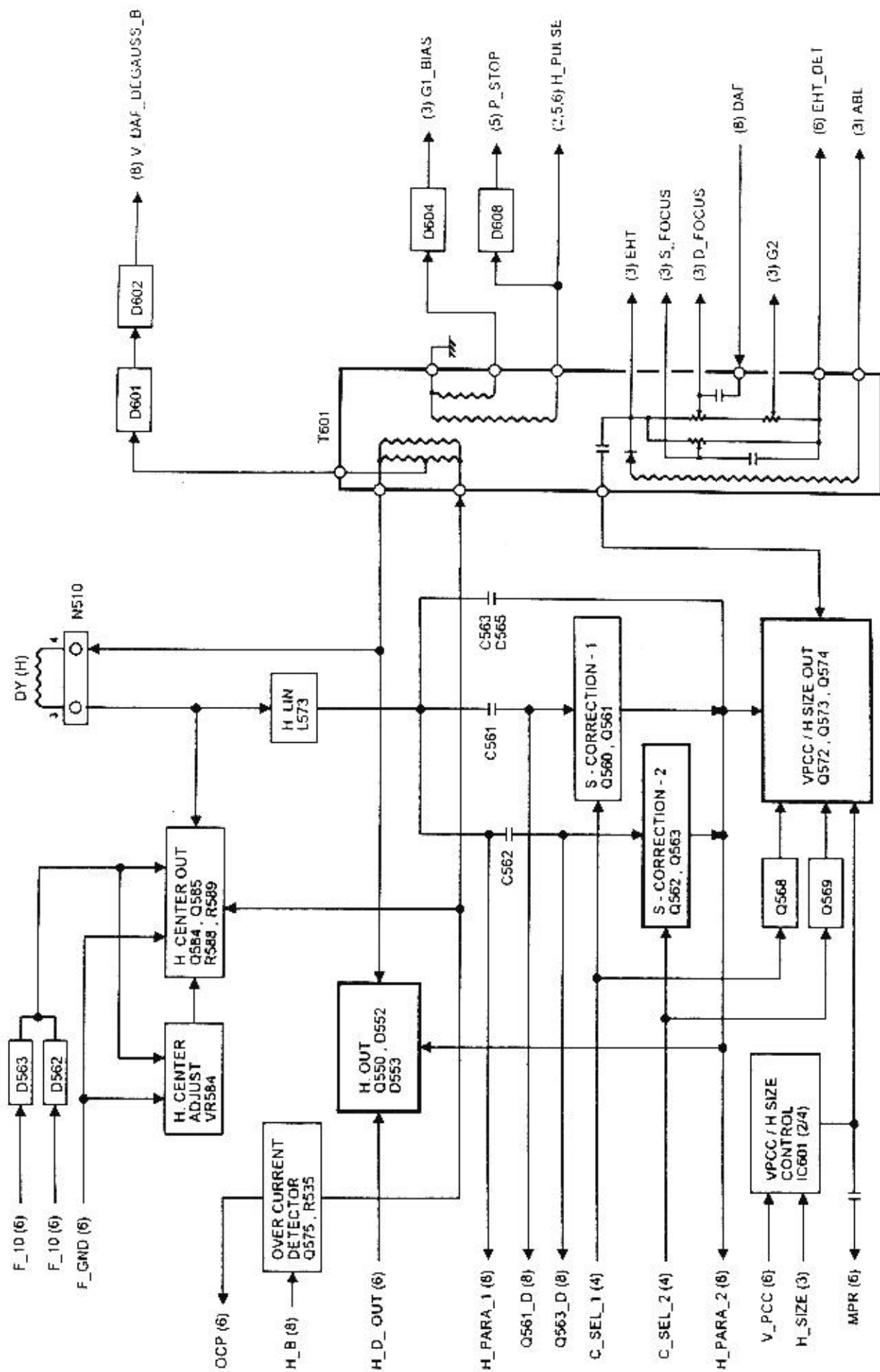
SHEET (5) / POWER SUPPLY for HV5F



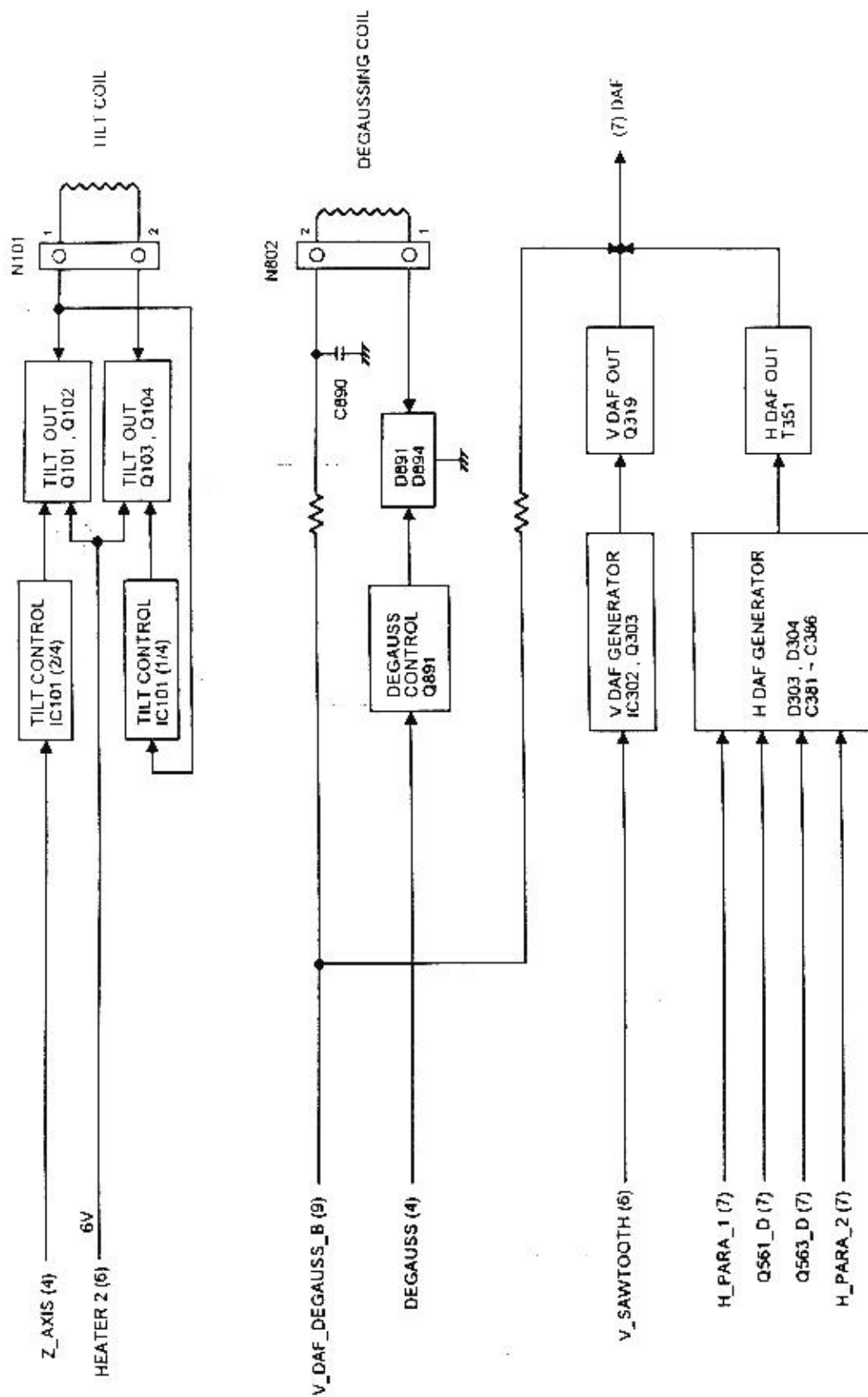
SHEET (6) / HV CONTROL / V OUT

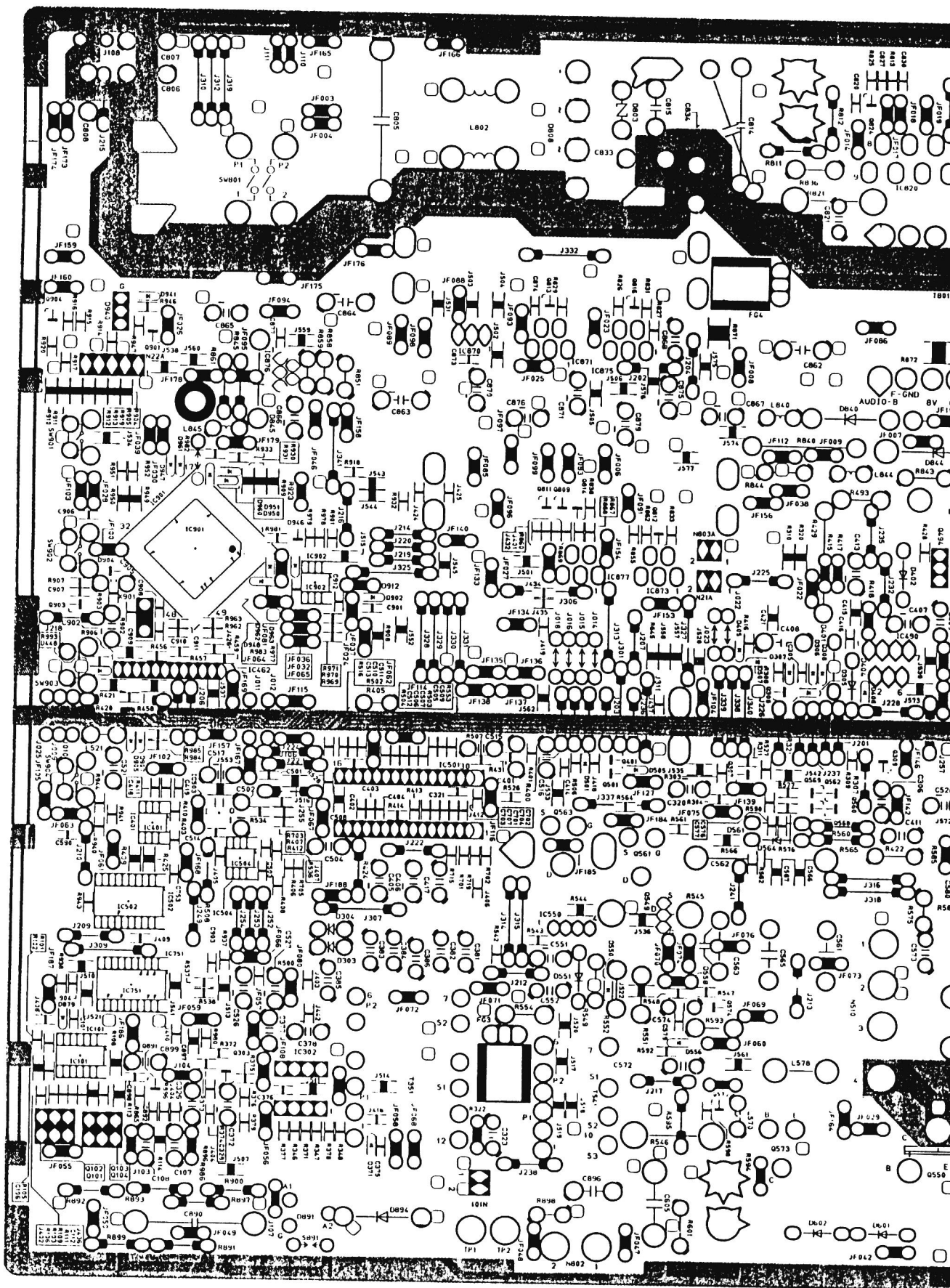


SHEET (7) / H OUT

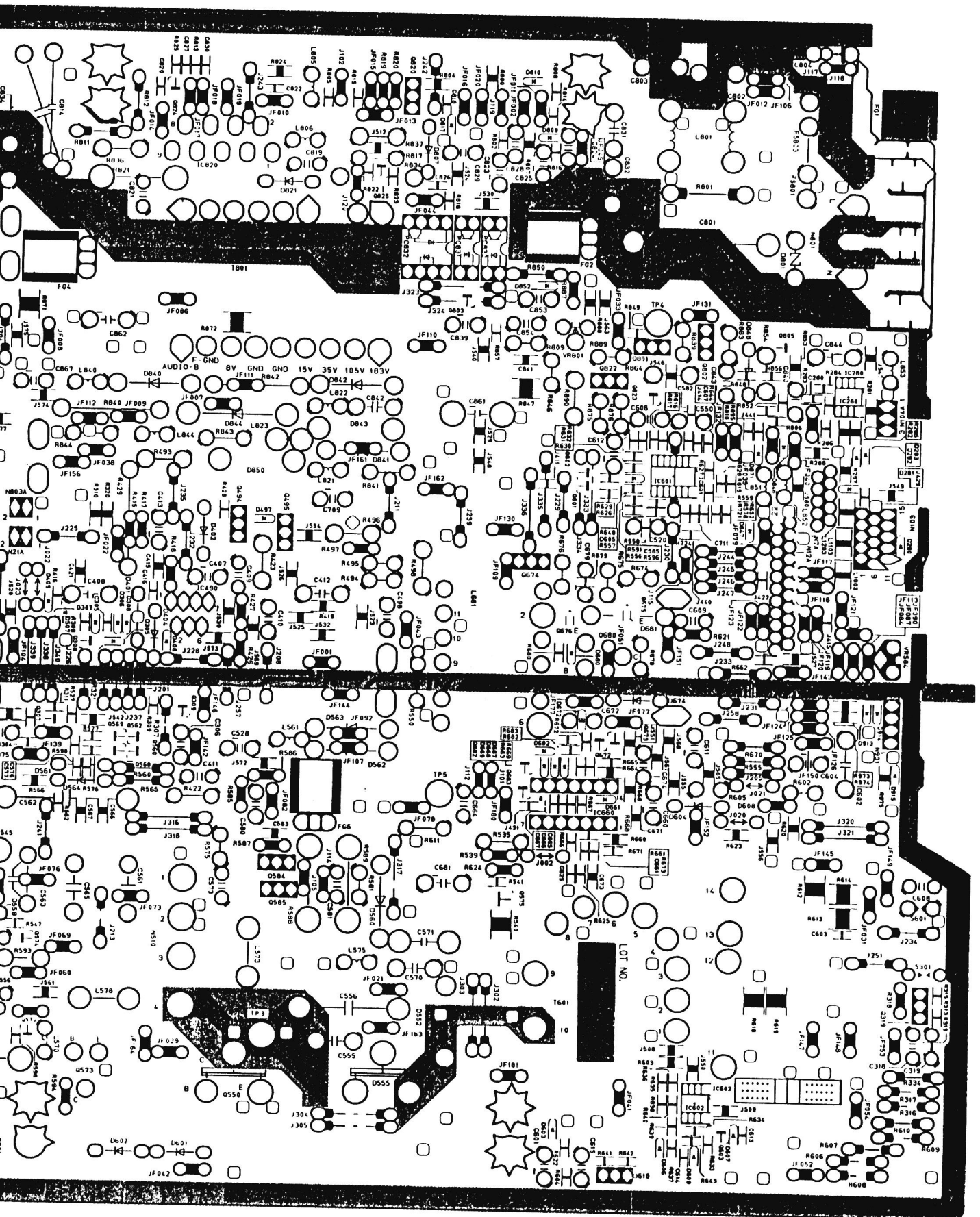


SHEET (8) / DAF OUT / DEGAUSS / TILT CONTROL

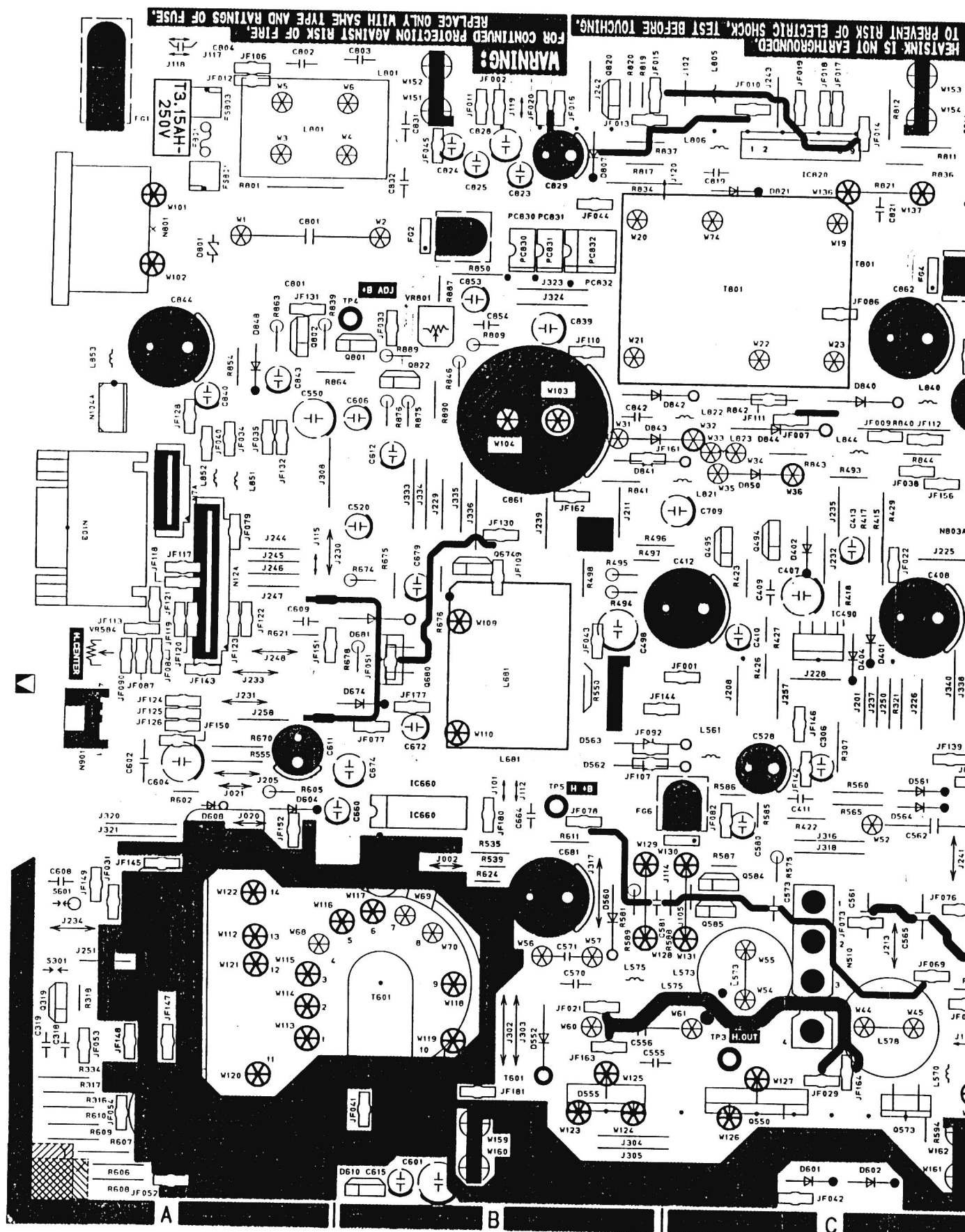


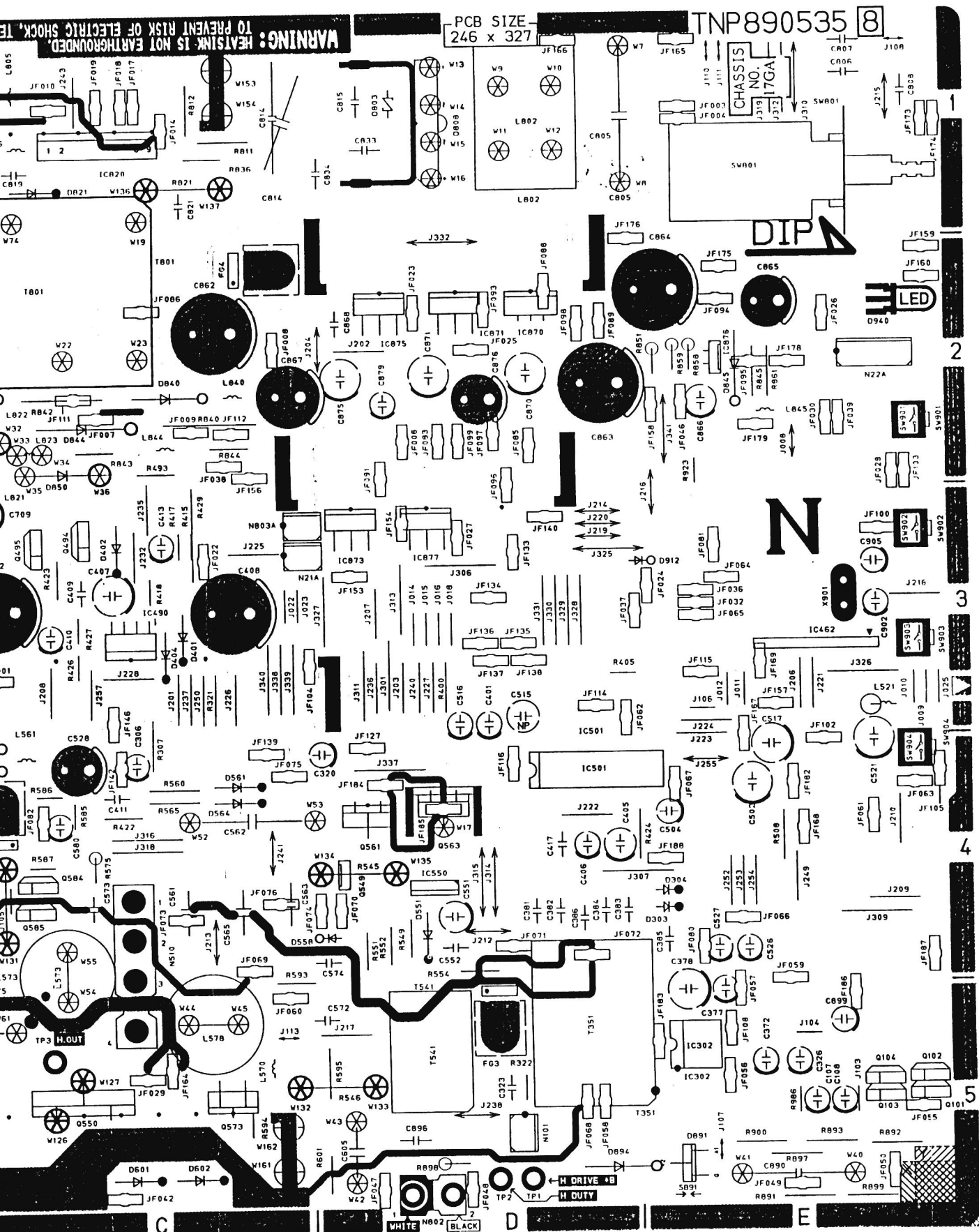


CONDUCTOR VIEW

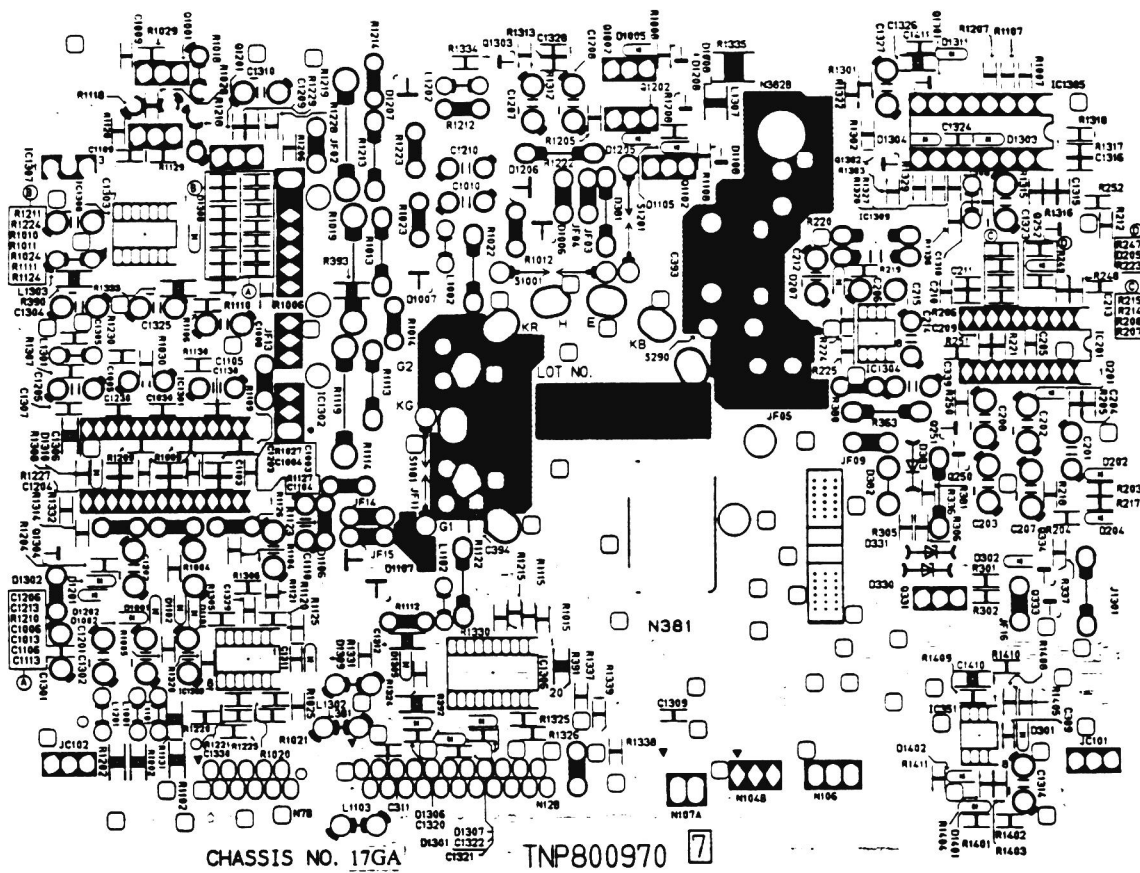


AIN BOARD (Parts side)

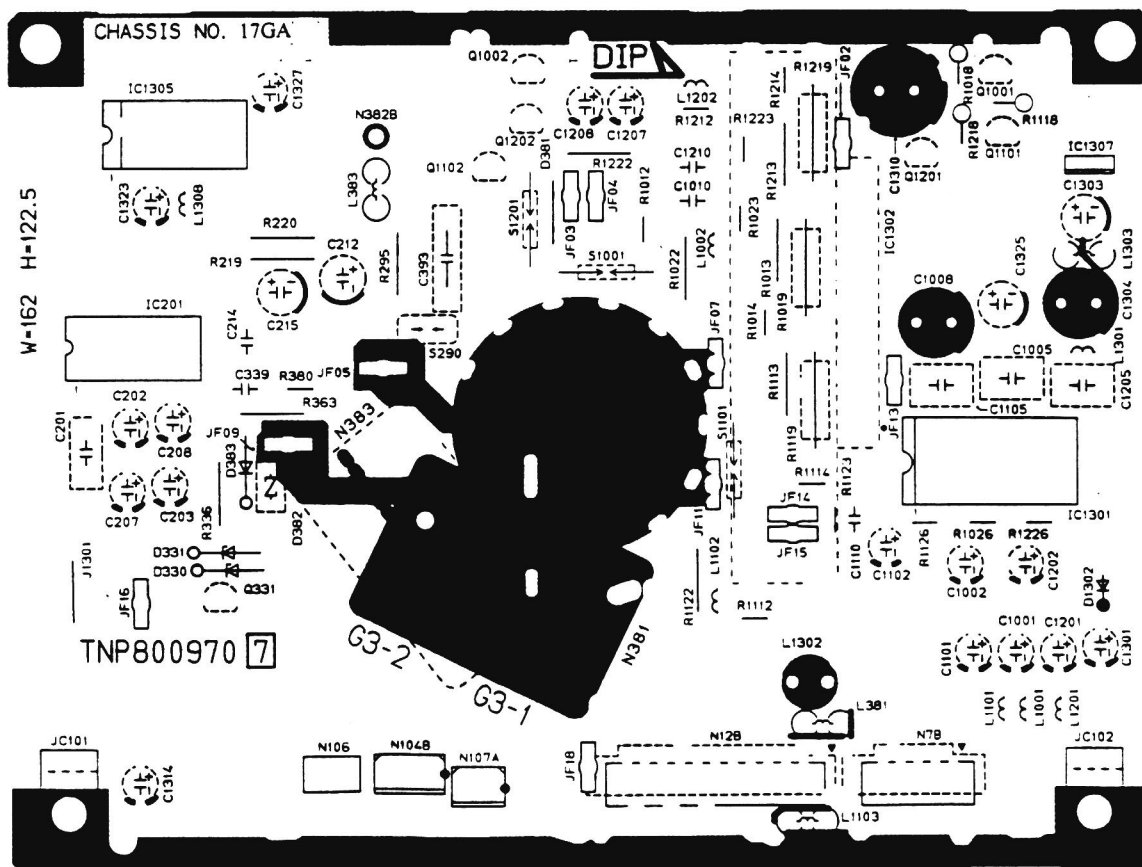




VIDEO BOARD (Solder side)



VIDEO BOARD (Parts side)



SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE

The component identified by shading or international symbol \triangle on the following schematic diagrams incorporate special features important for protection from X-Radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts **are used for those critical components.**

NOTES :

1. RESISTOR

All resistors are carbon 1/4W resistor, unless otherwise noted by the following marks
Unit of resistance is ohm (Ω), (K = 1,000, M = 1,000,000)

	Non-Flammable		Solid
	Metal Oxide		Metal (Precision and high stability)
	Wire Wound		Thermistor
	Fusible		Positive coefficient Thermistor
	Flame Proof Rectangular		

2. CAPACITOR

All capacitors are ceramic 50V capacitor, unless otherwise noted by the following marks
Unit of capacitance is μF , unless otherwise noted

	Electrolytic		Polyester
	Tantalum		Metalized Polyester
	Bipolar		Polypropylene
	Polystyrene		Mica
	Temperature Compensation		Ceramic
			Ceramic (SL)

3. COIL

Unit of inductance is μH , unless otherwise noted

4. VOLTAGE MEASUREMENT

Voltage is measured by a digital meter receiving normal signal

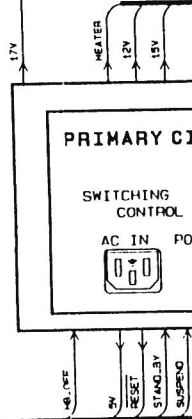
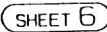
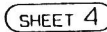
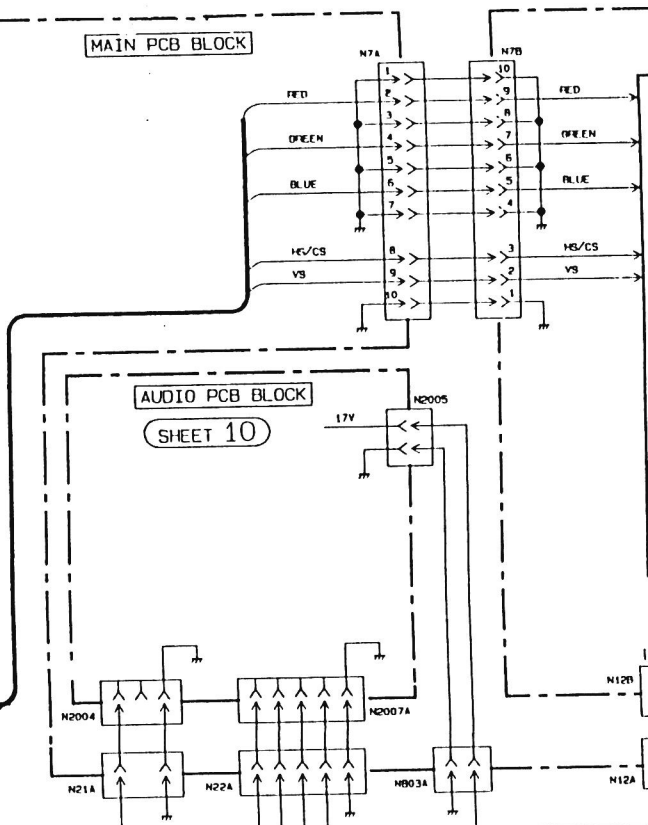
5. This schematic diagram is the latest at the time of printing and is subject to change without notice

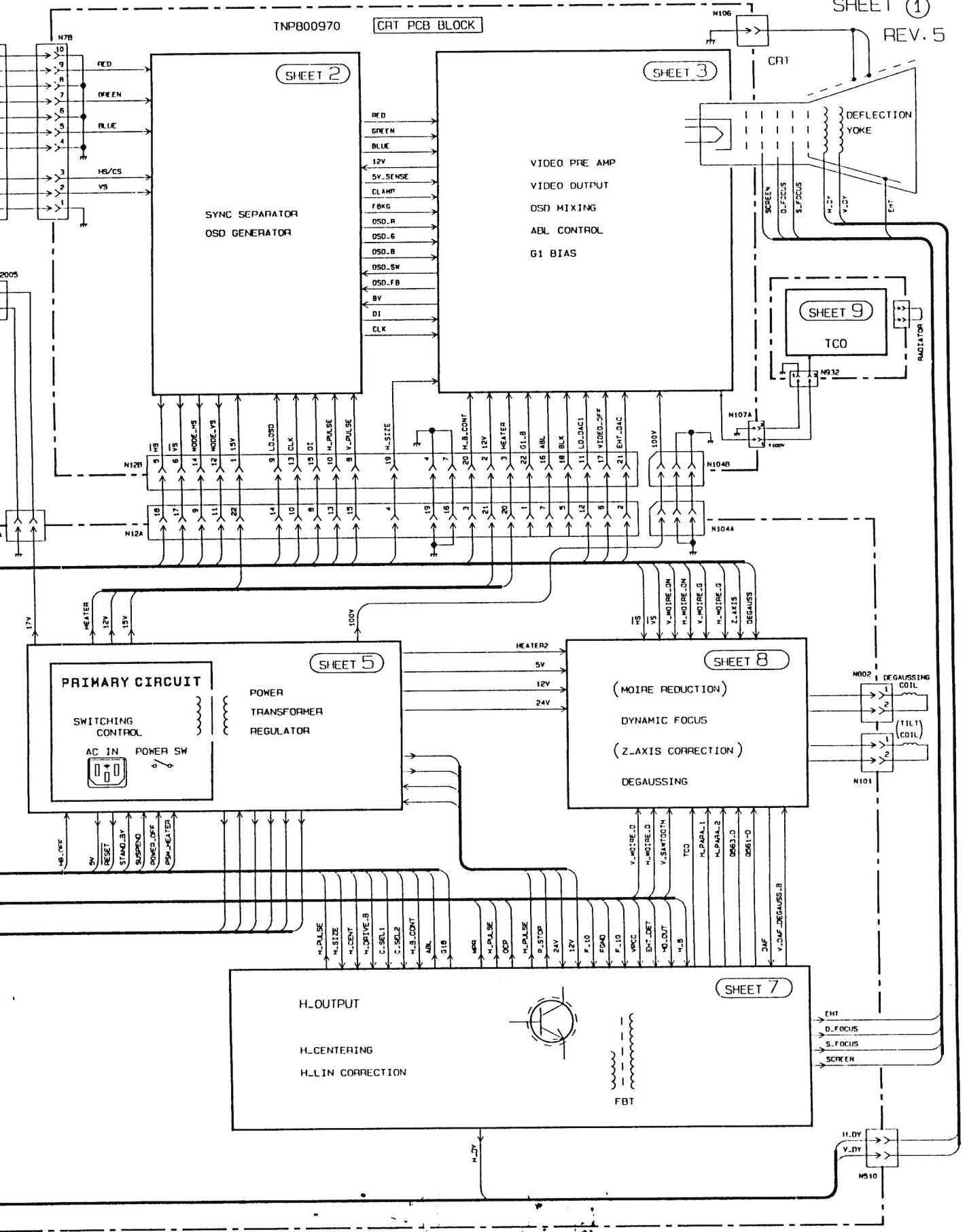
SERVICE NOTES :

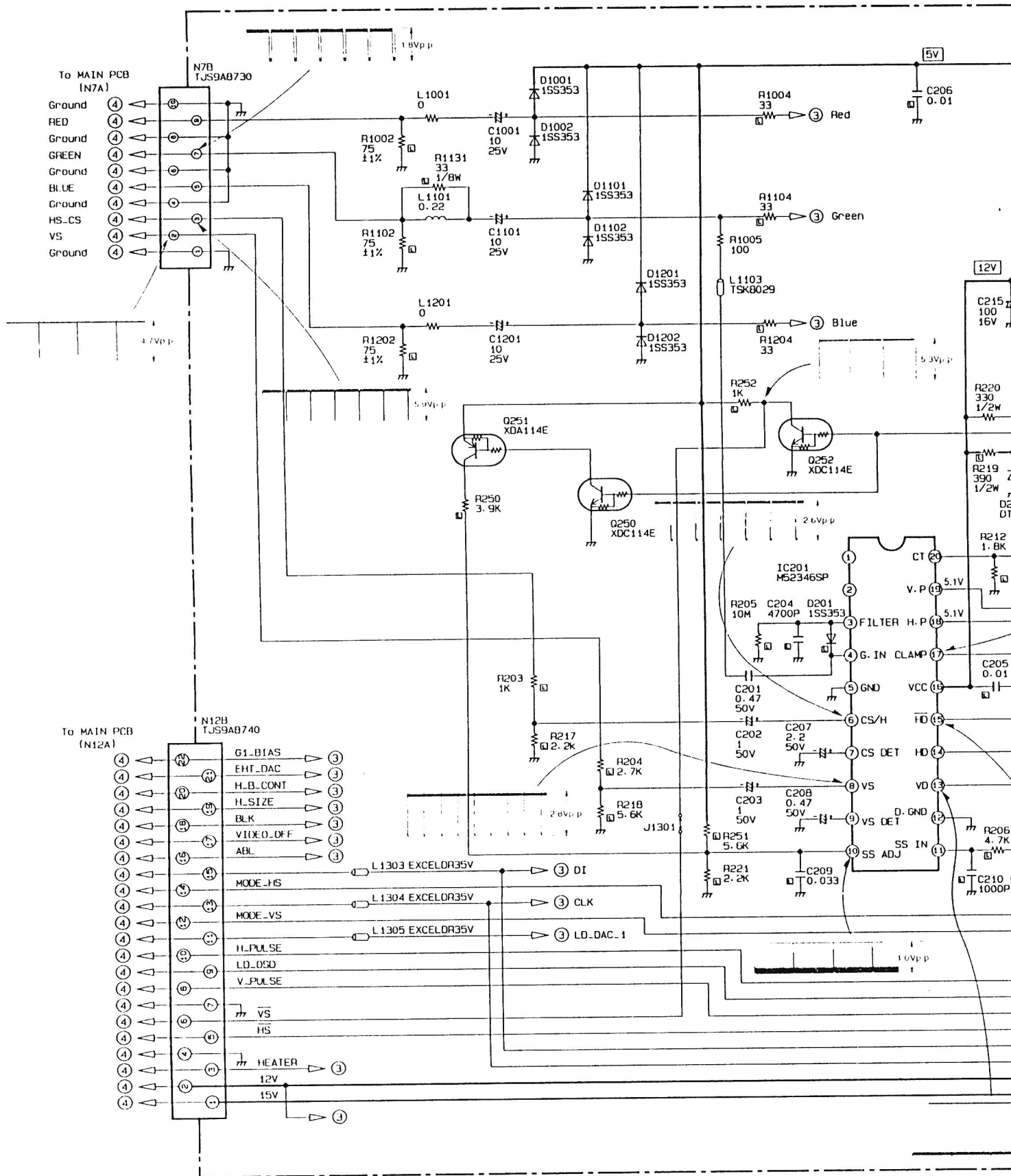
This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below

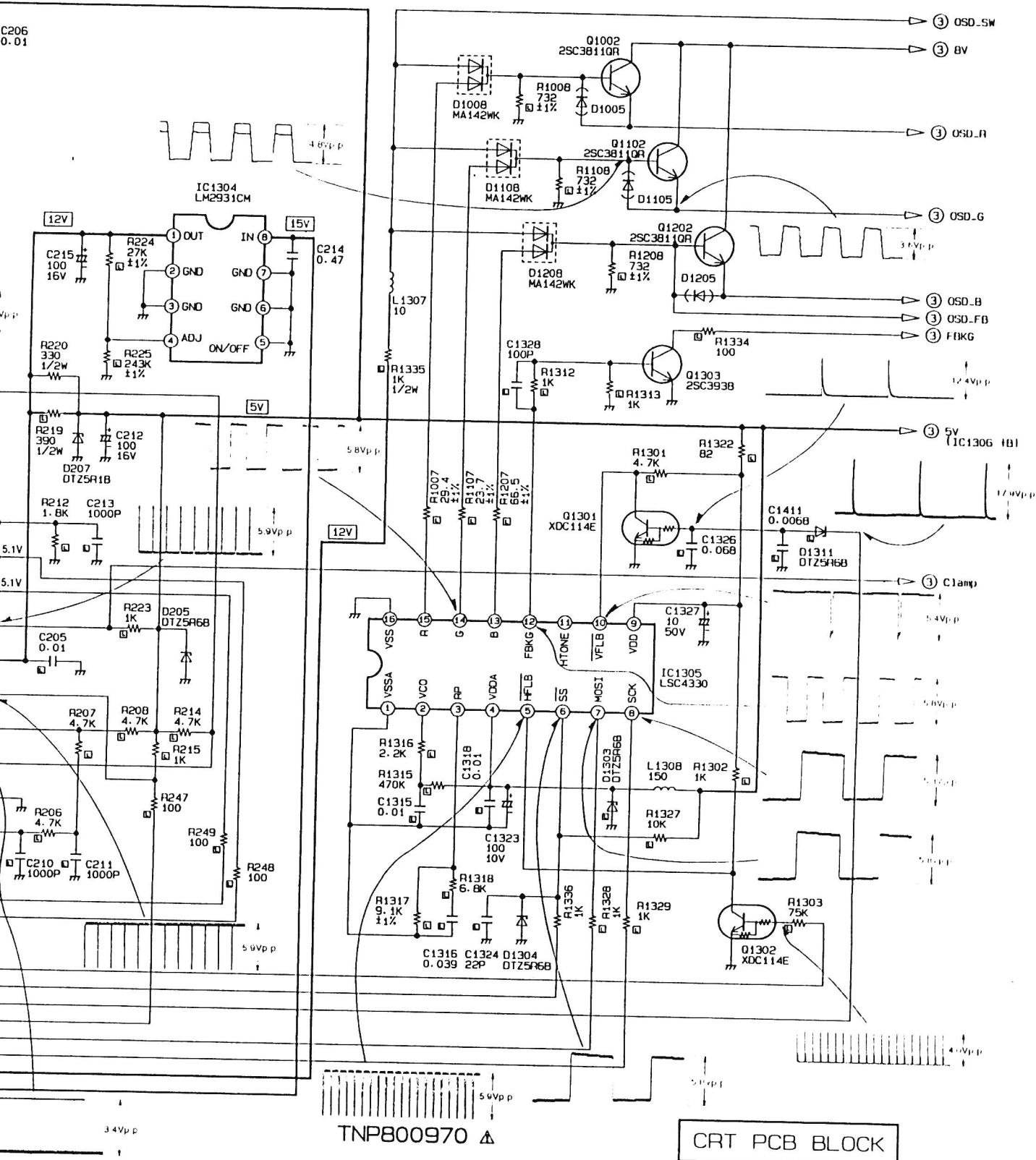
1. Do not touch the HOT section and the COLD section at the same time. You may **suffer an electric shock.**
2. Do not short the HOT section to the COLD section. This could blow the fuse or **damage parts.**
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multi-meters.
4. Always unplug the unit before beginning any **operations, such as removing the chassis.**

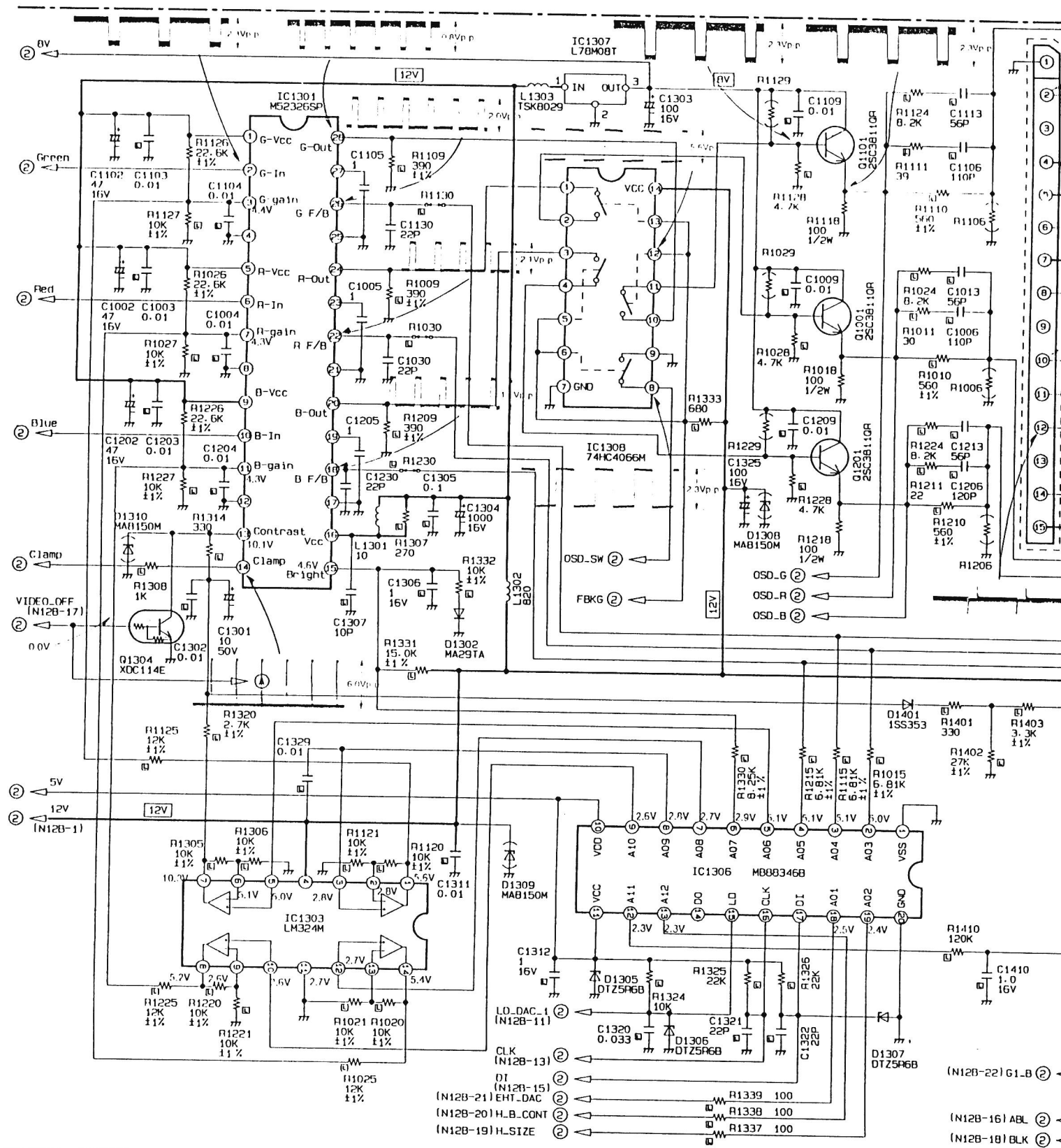
MAIN PCB BLOCK

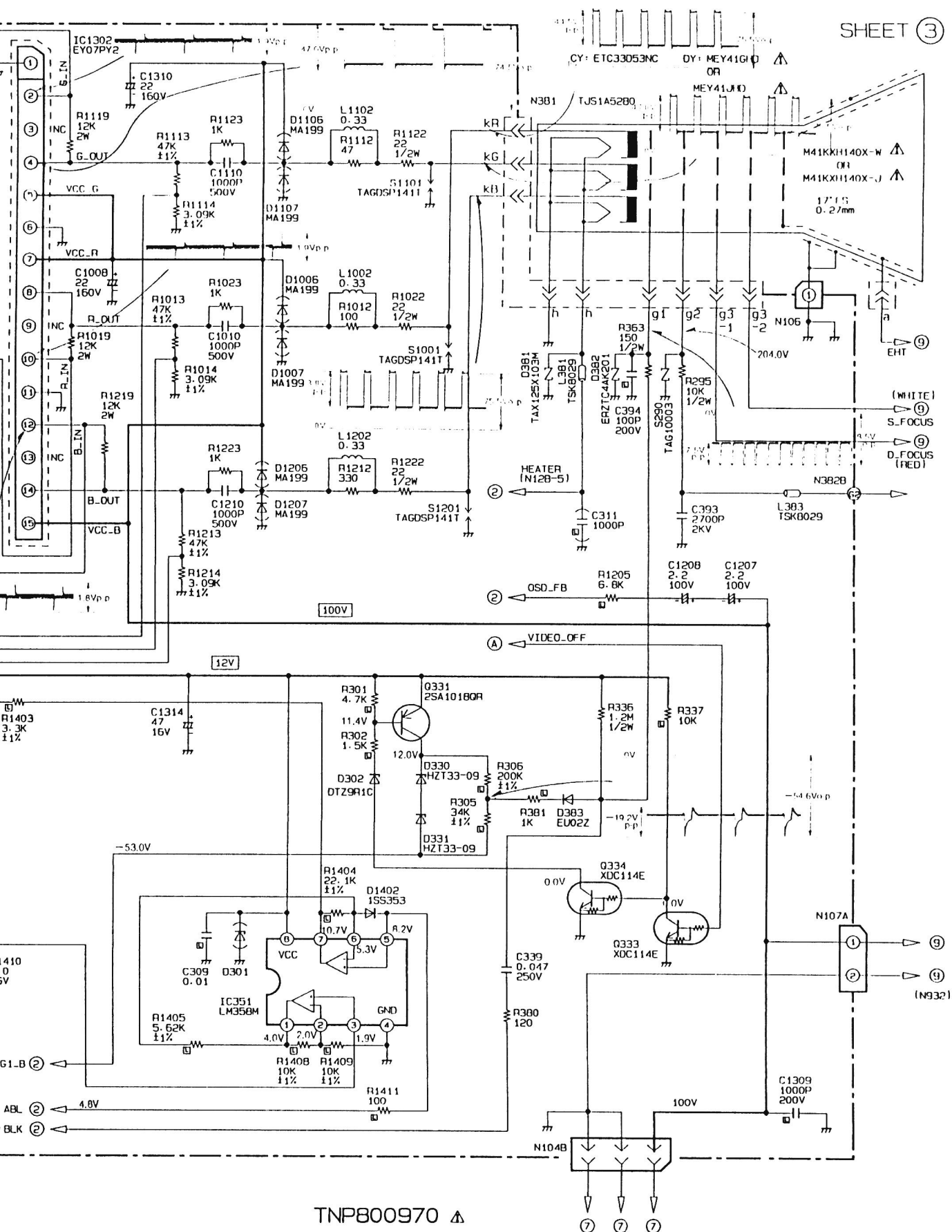




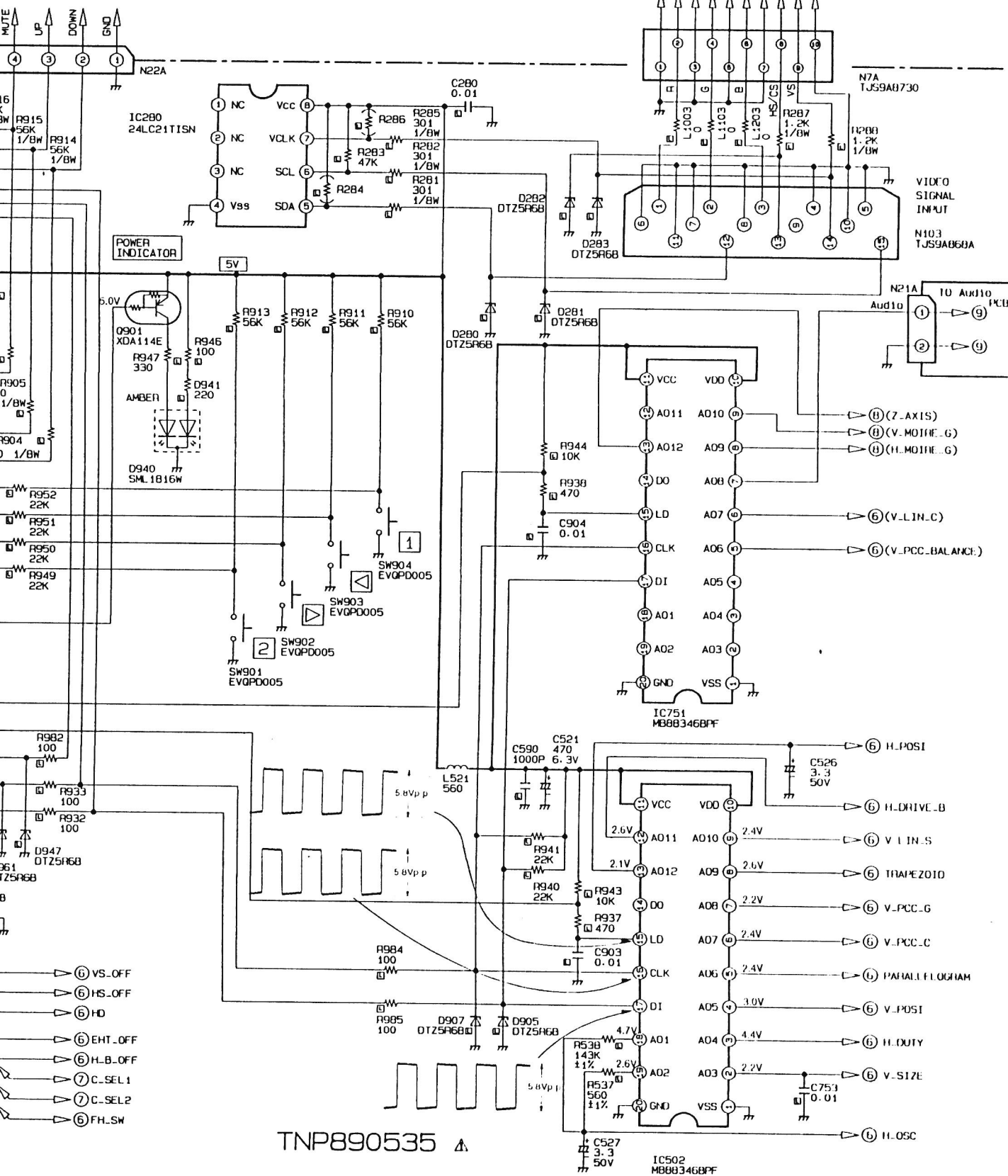




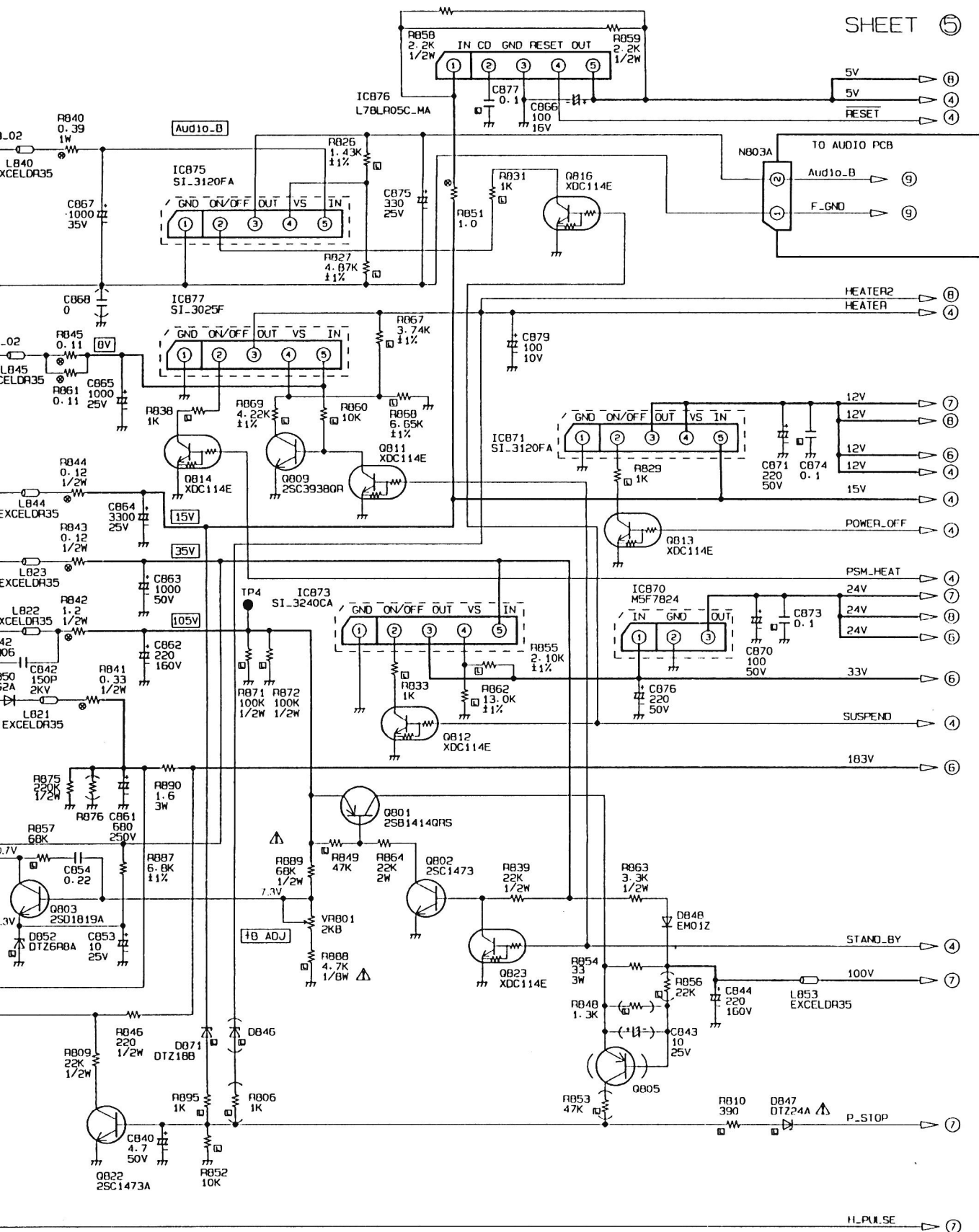




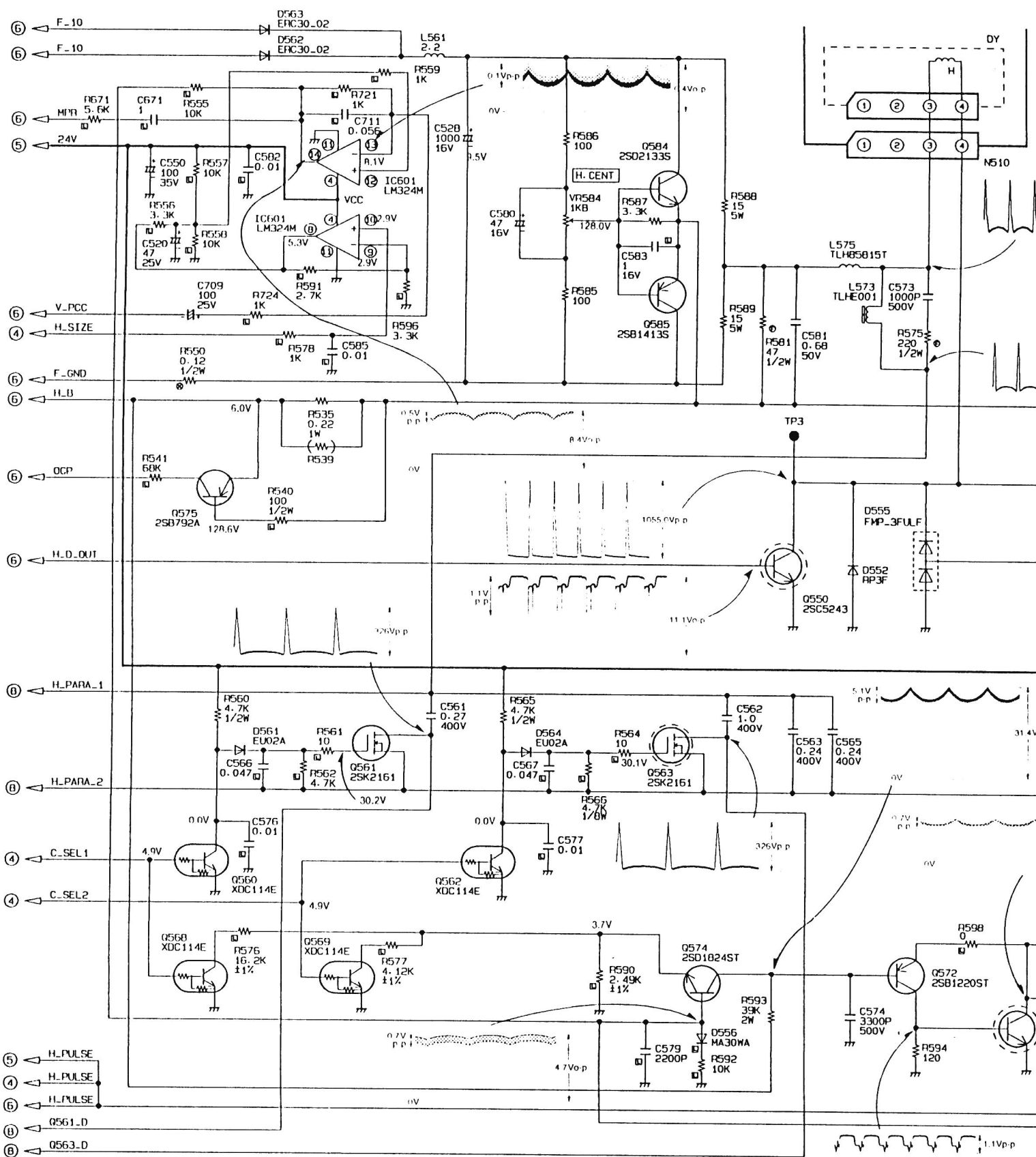
②②②②②②②②②②

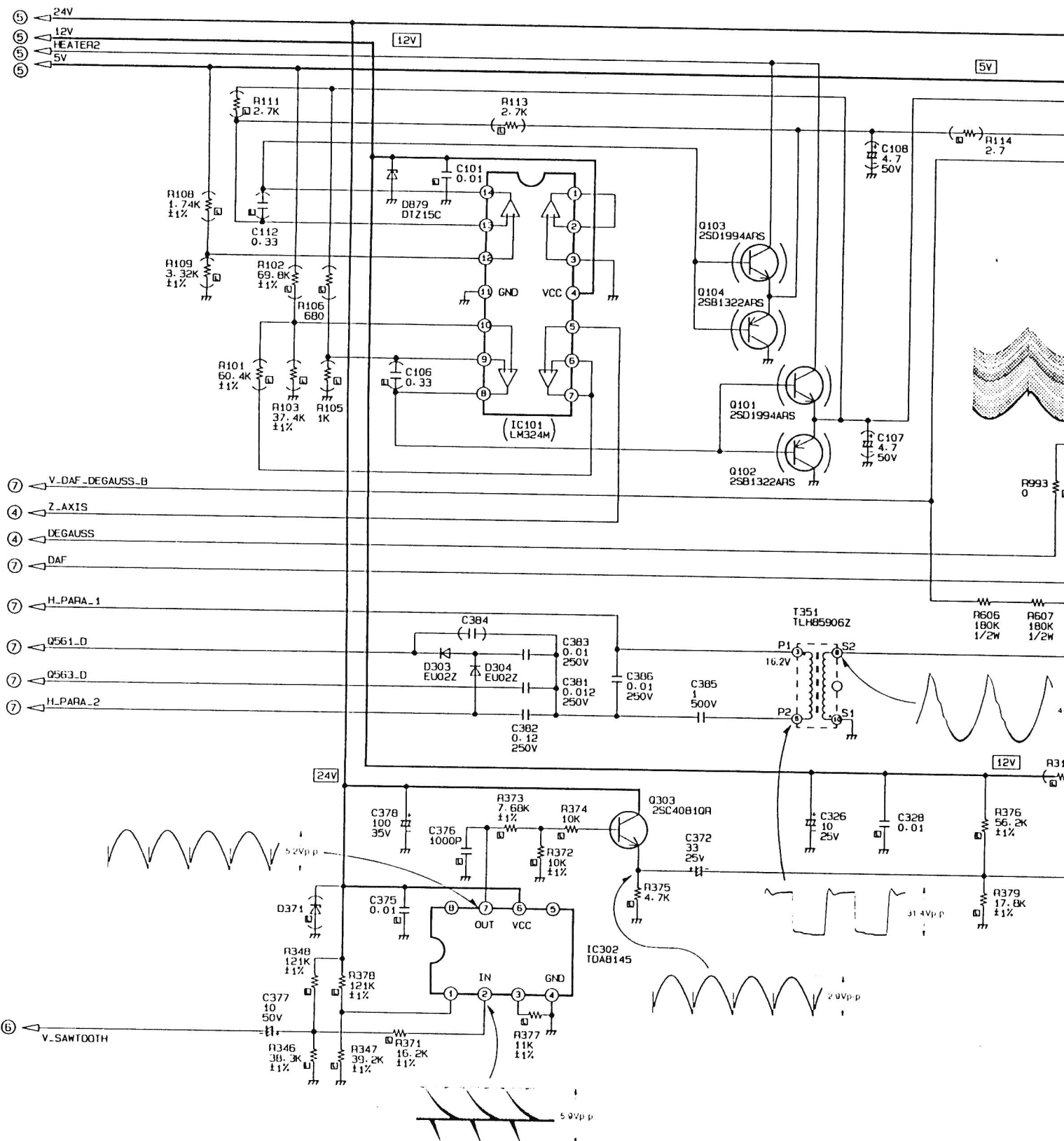


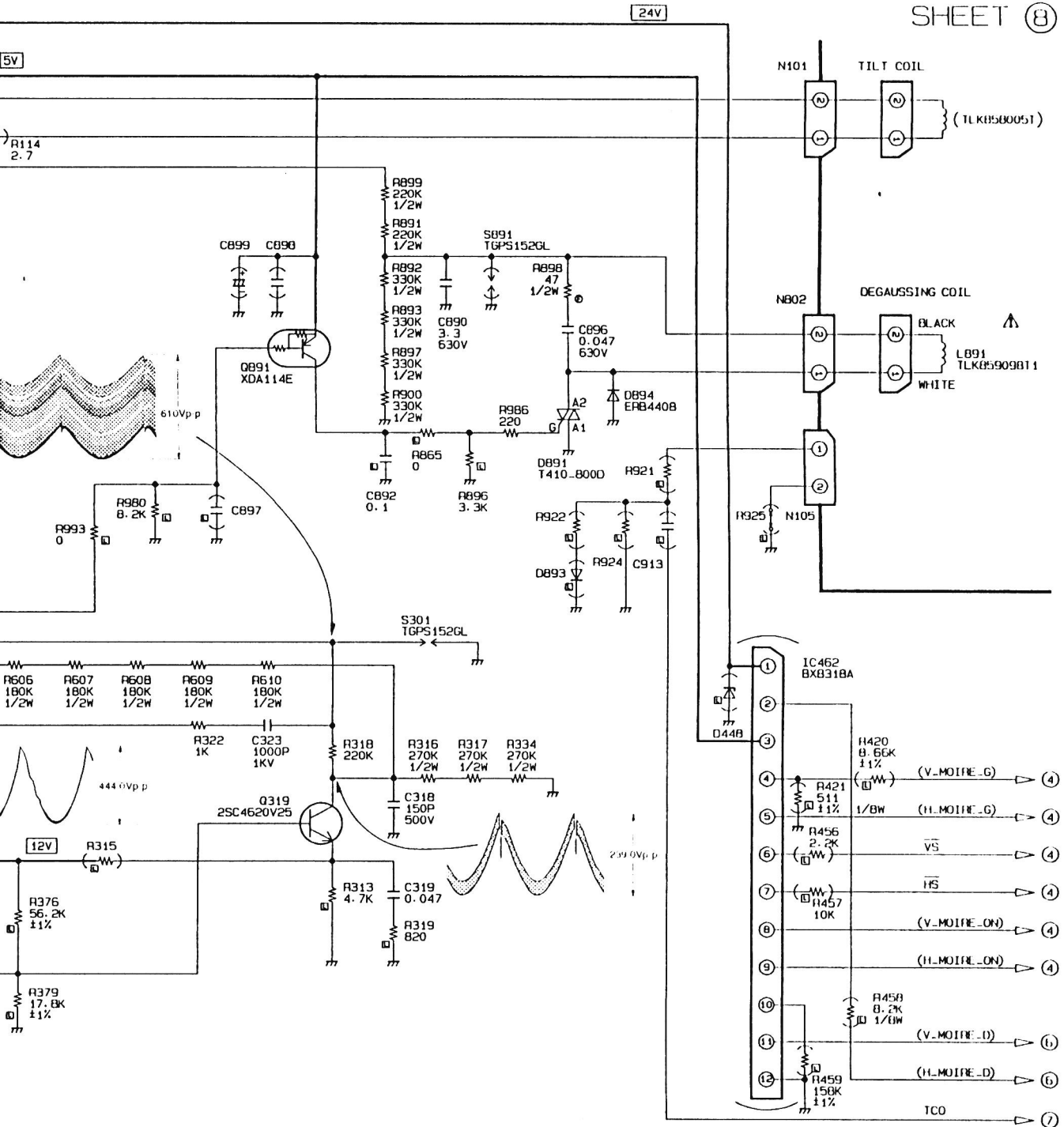
[illegible]

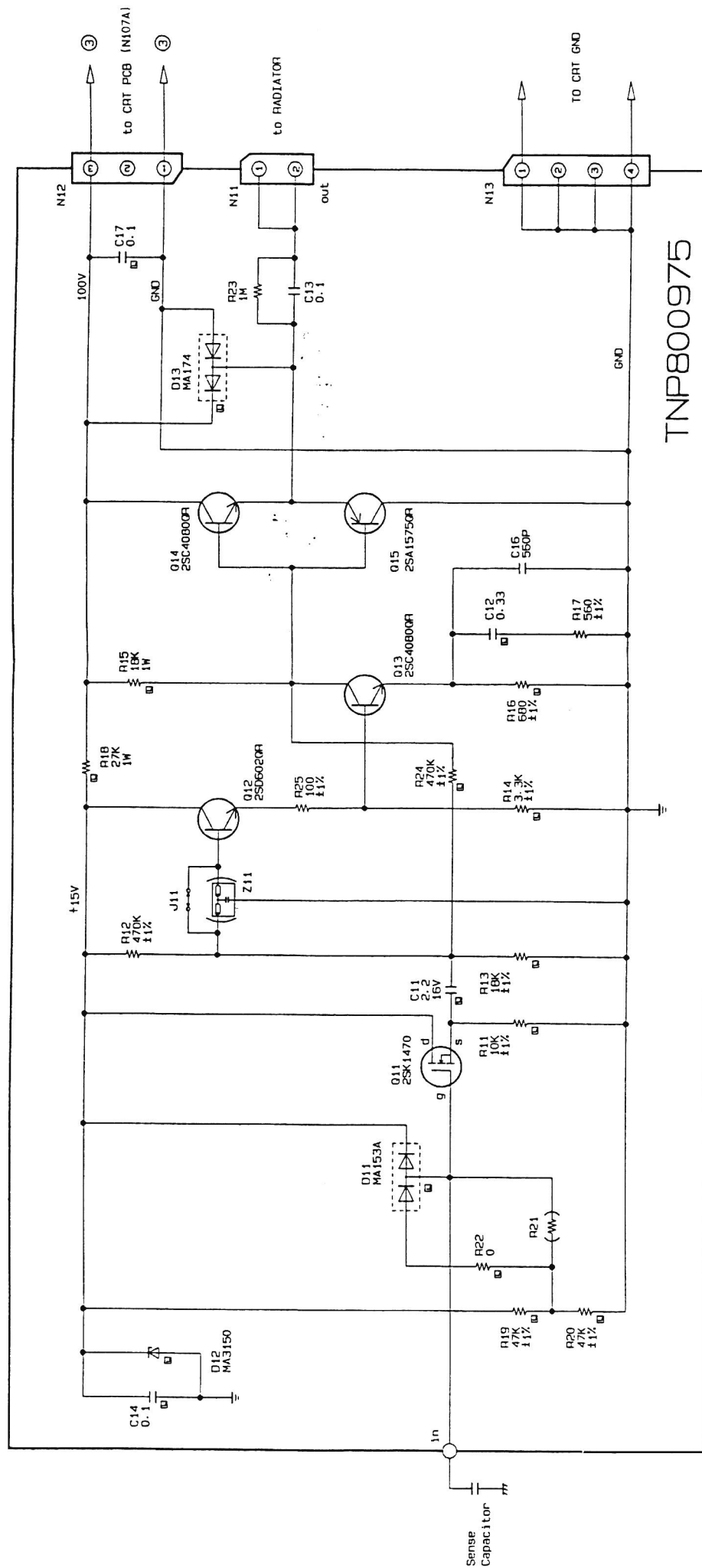


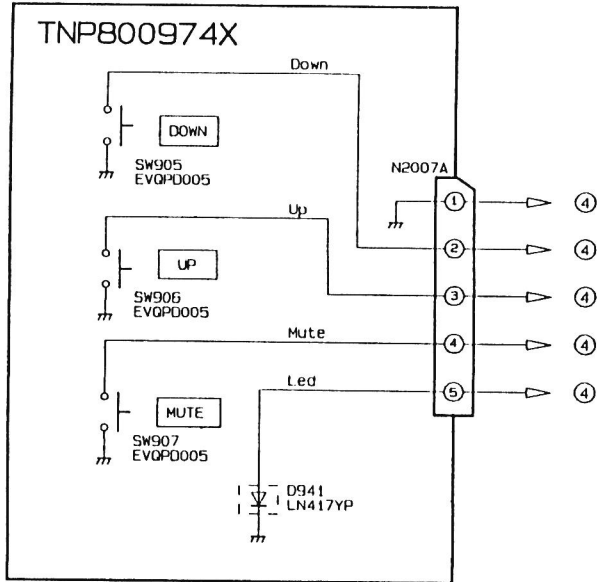




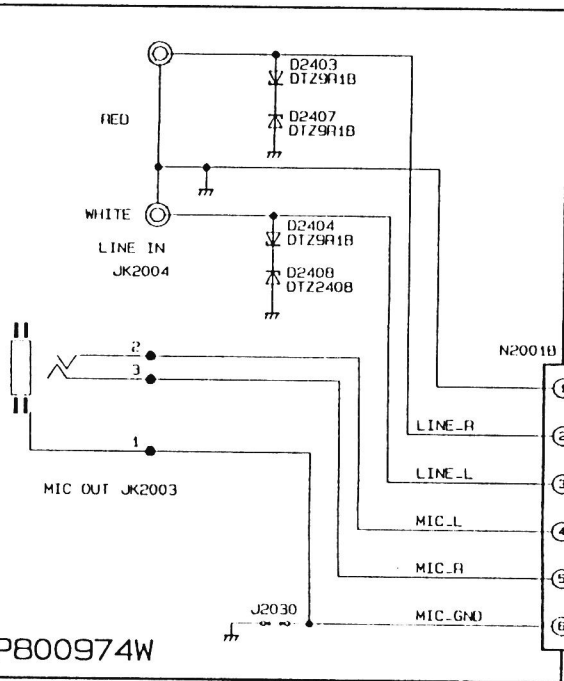






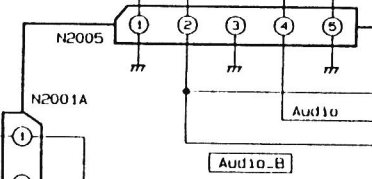


TO Main PCB
(N22A)

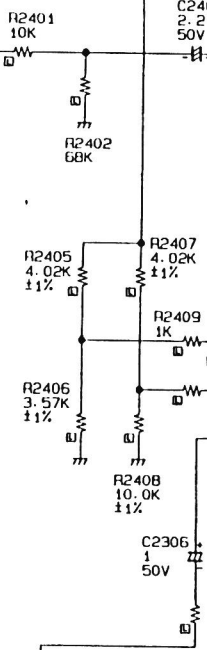


TO MAIN PCB
(N803A)

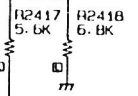
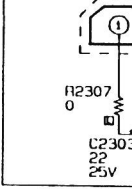
TO MAIN PCB
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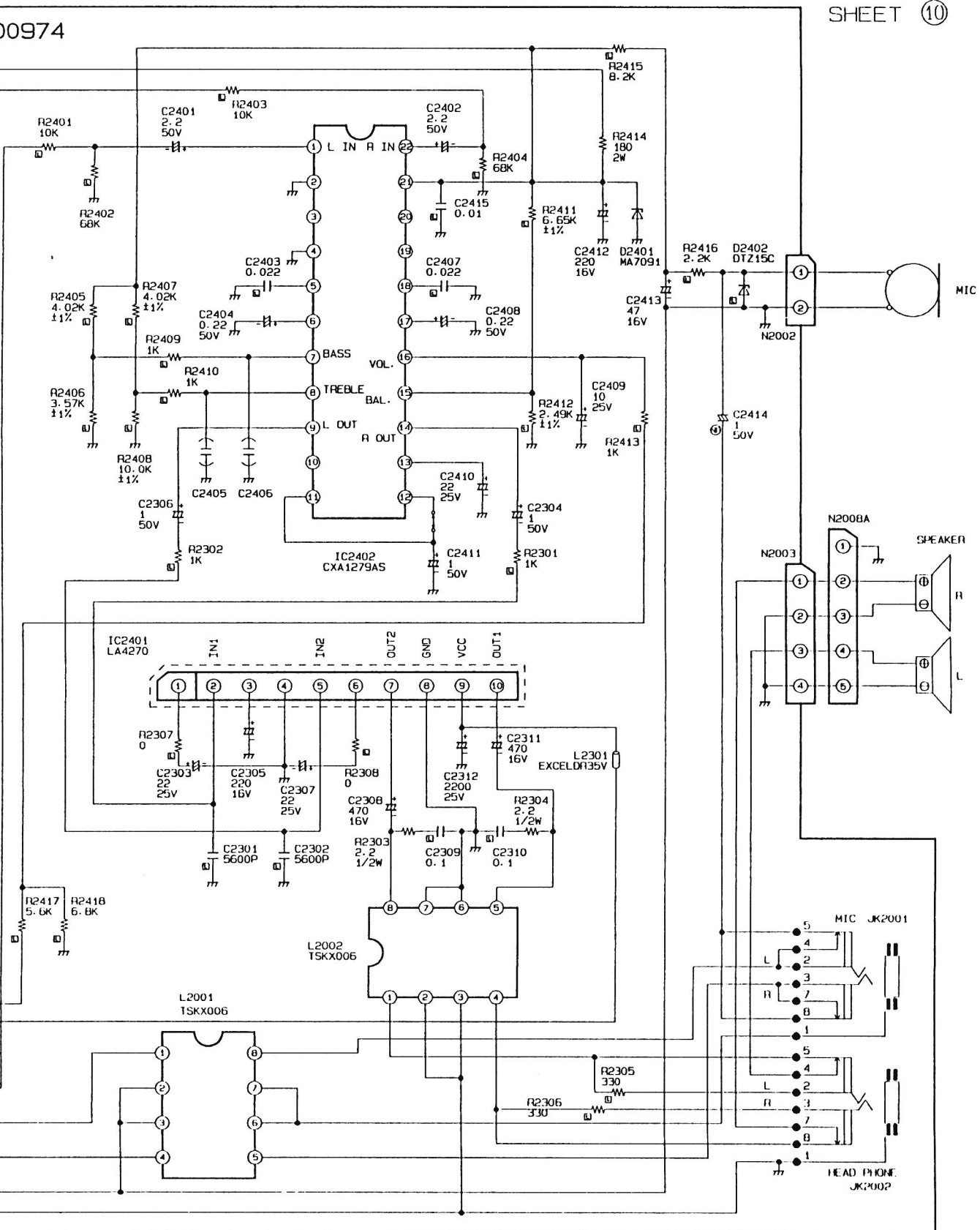


TNP800974

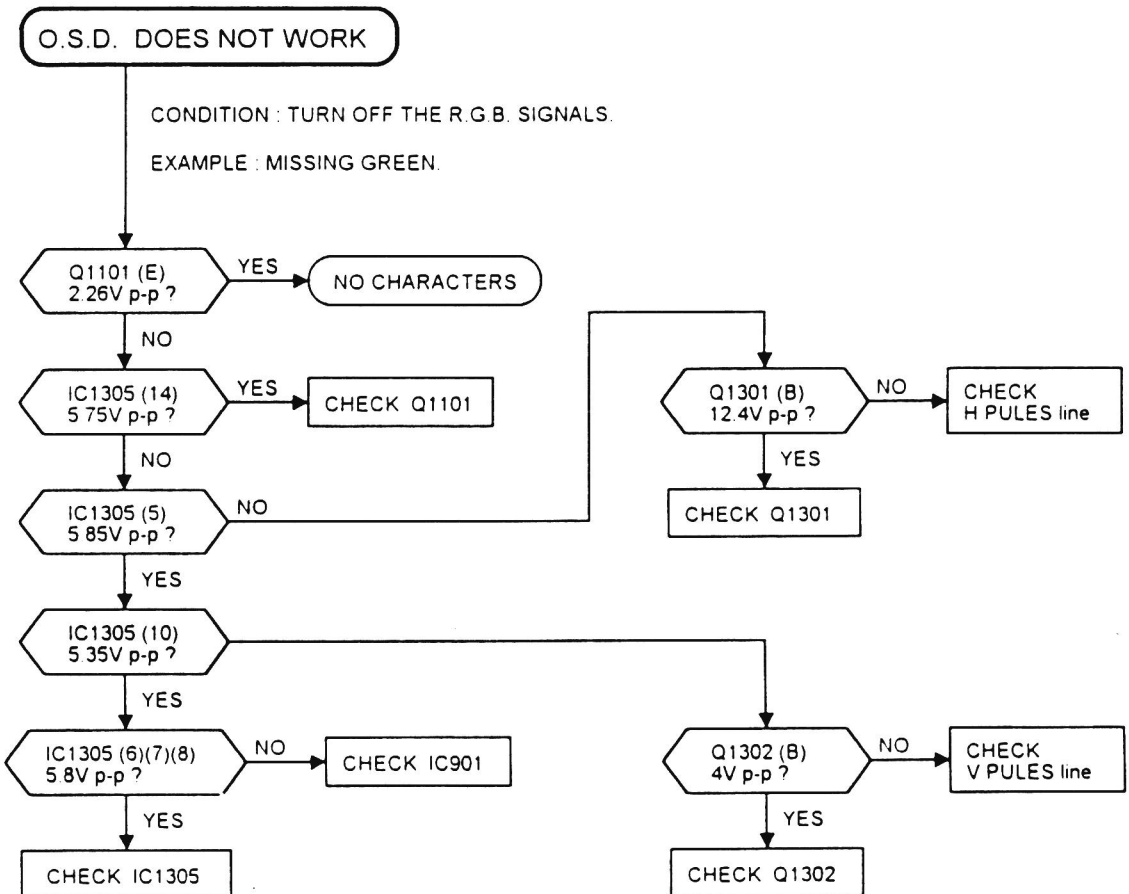
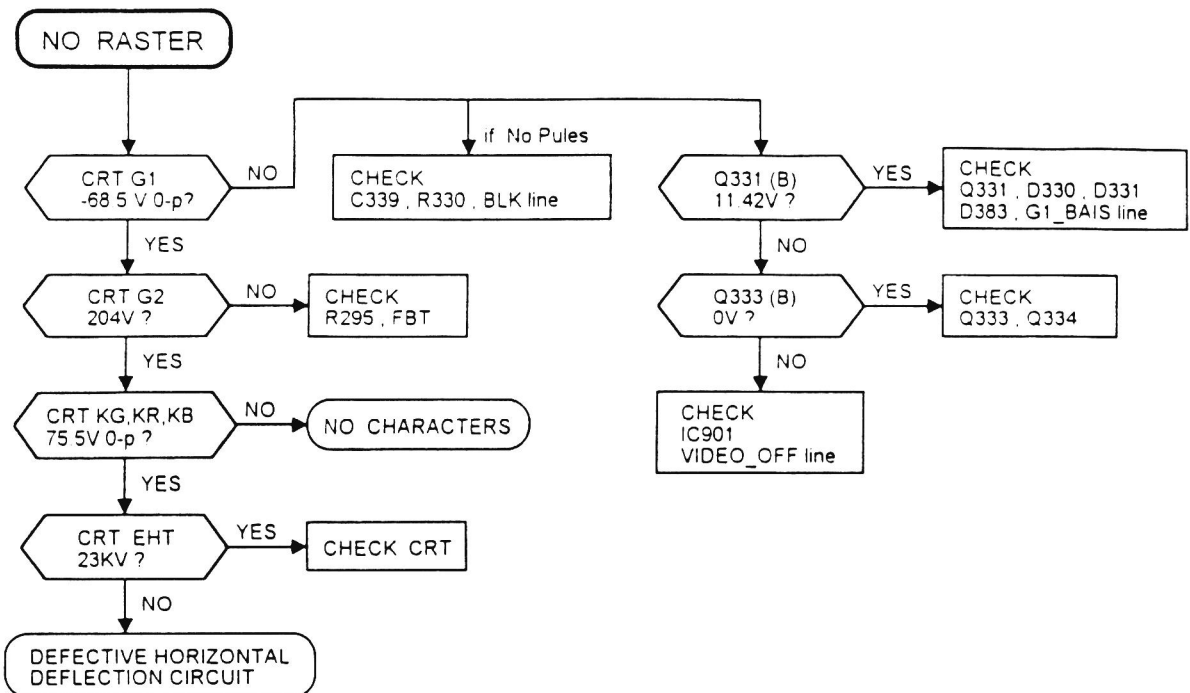


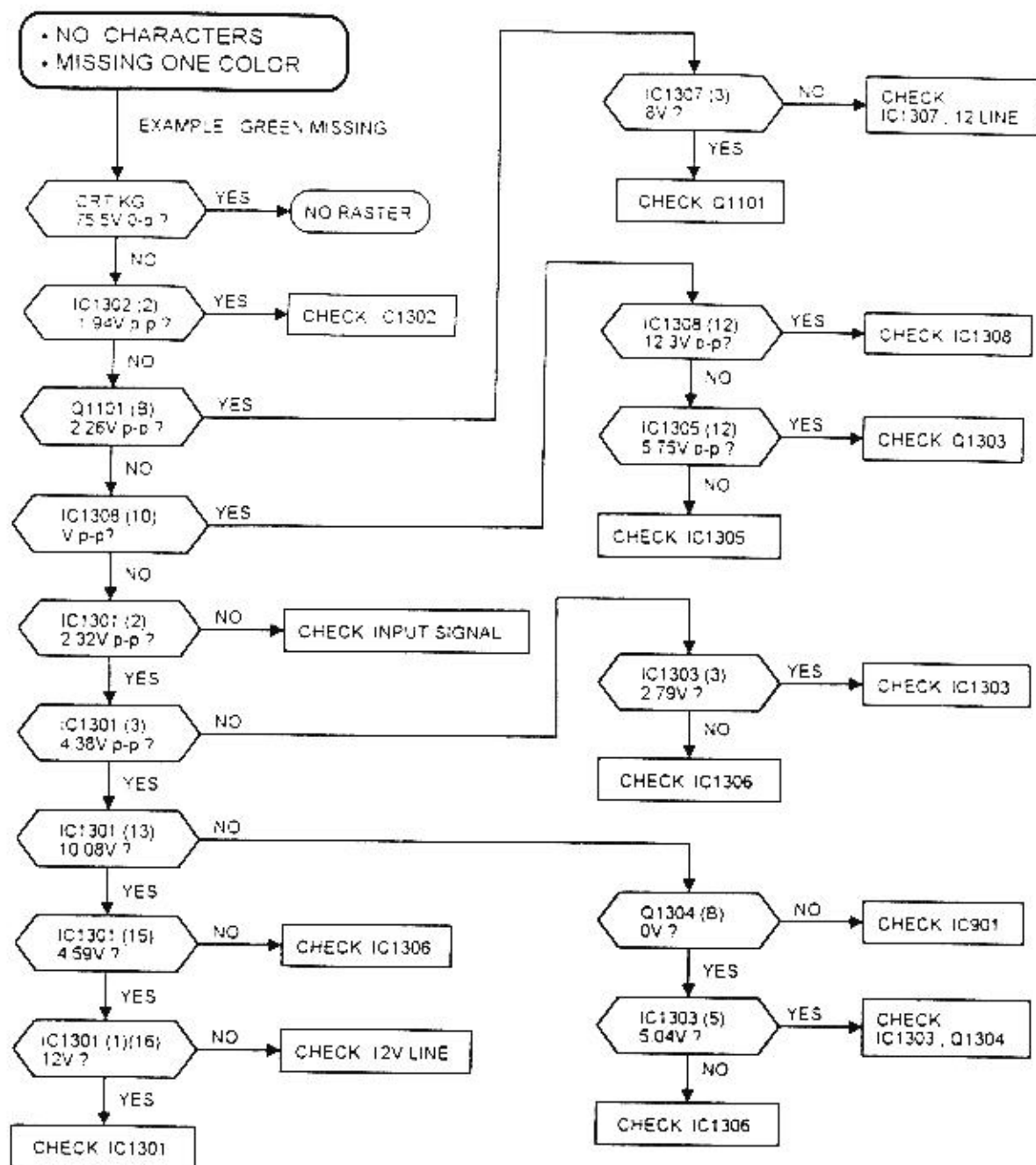
IC2401 LA4270

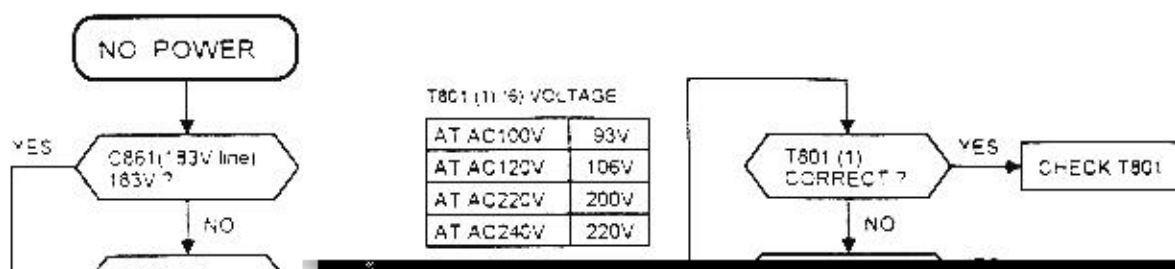


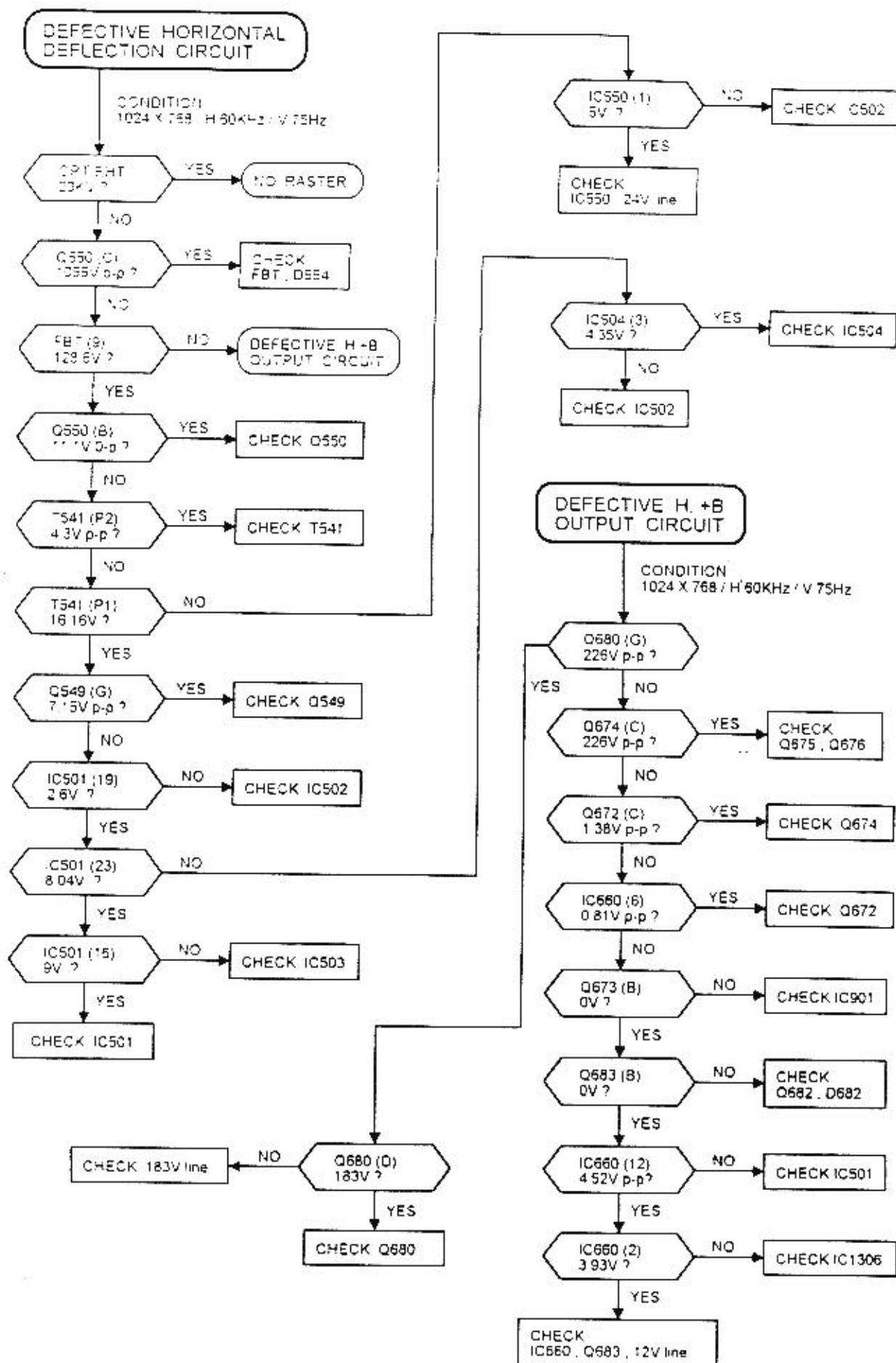


TROUBLE SHOOTING HINTS

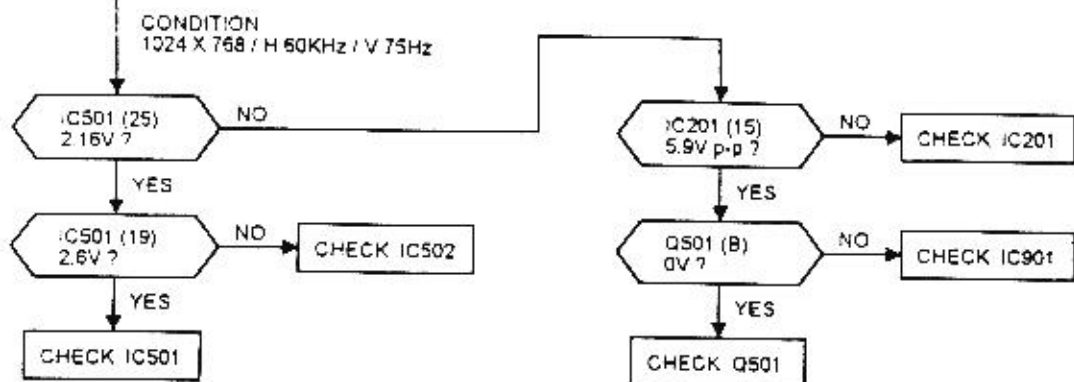








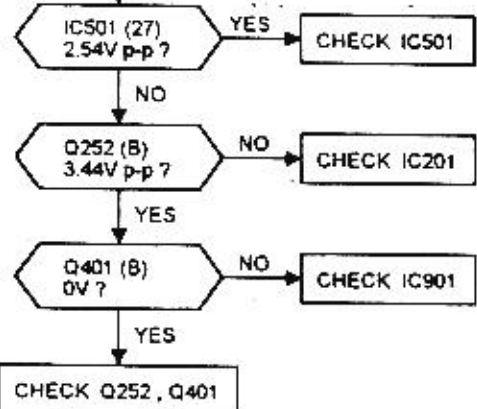
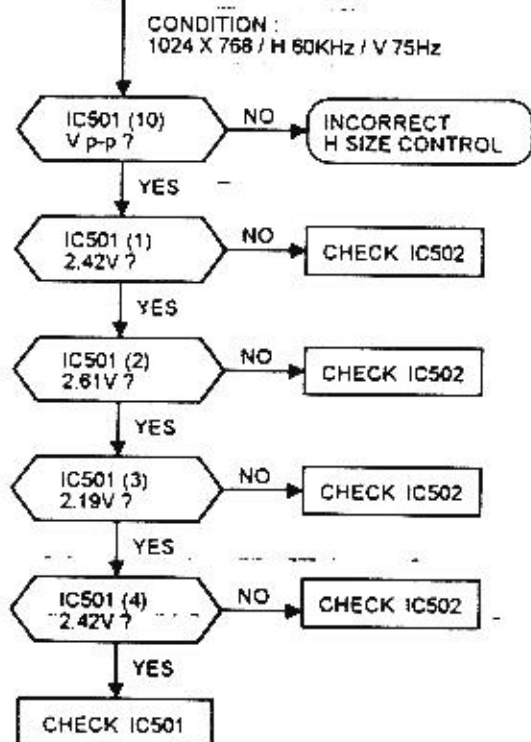
H. SYNC DOES NOT HOLD



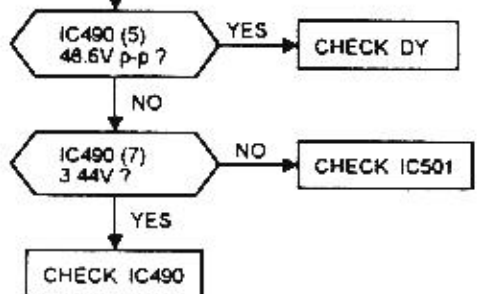
If no horizontal and/or vertical sync from PC,
then the power save circuit becomes active.

V. SYNC DOES NOT HOLD

INCORRECT V.PCC

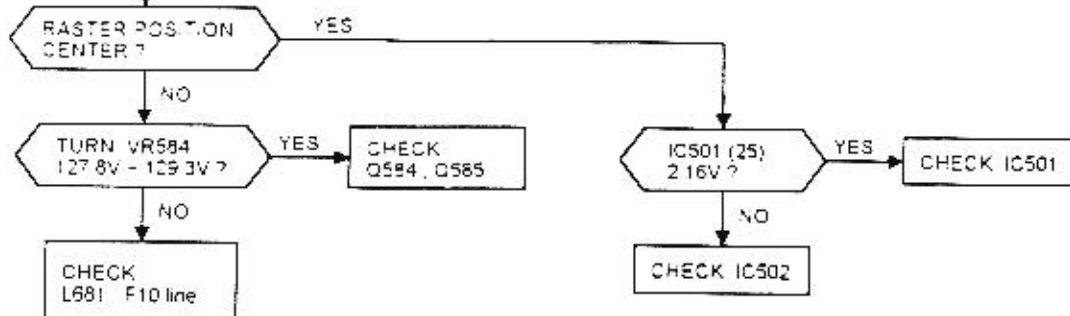


BRIGHT HORIZONTAL LINE APPEARS ON THE SCREEN



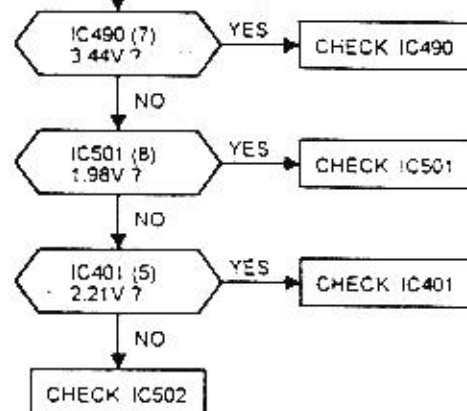
INCORRECT H. POSITION CONTROL

CONDITION
1024 X 768 / H 60KHz / V 75Hz



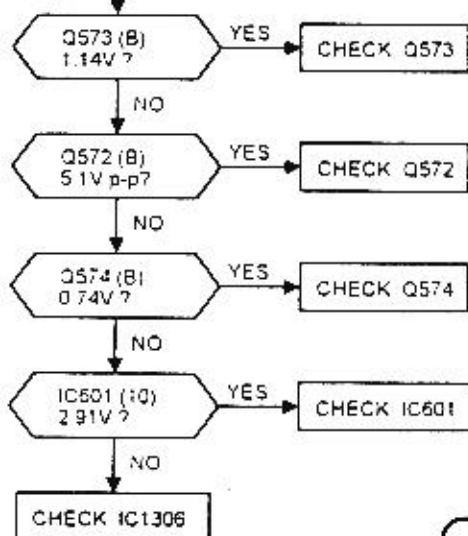
INCORRECT V. SIZE CONTROL

CONDITION
1024 X 768 / H 60KHz / V 75Hz



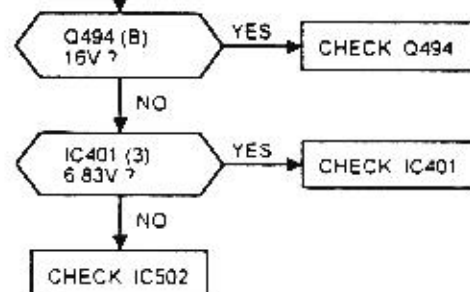
INCORRECT H. SIZE CONTROL

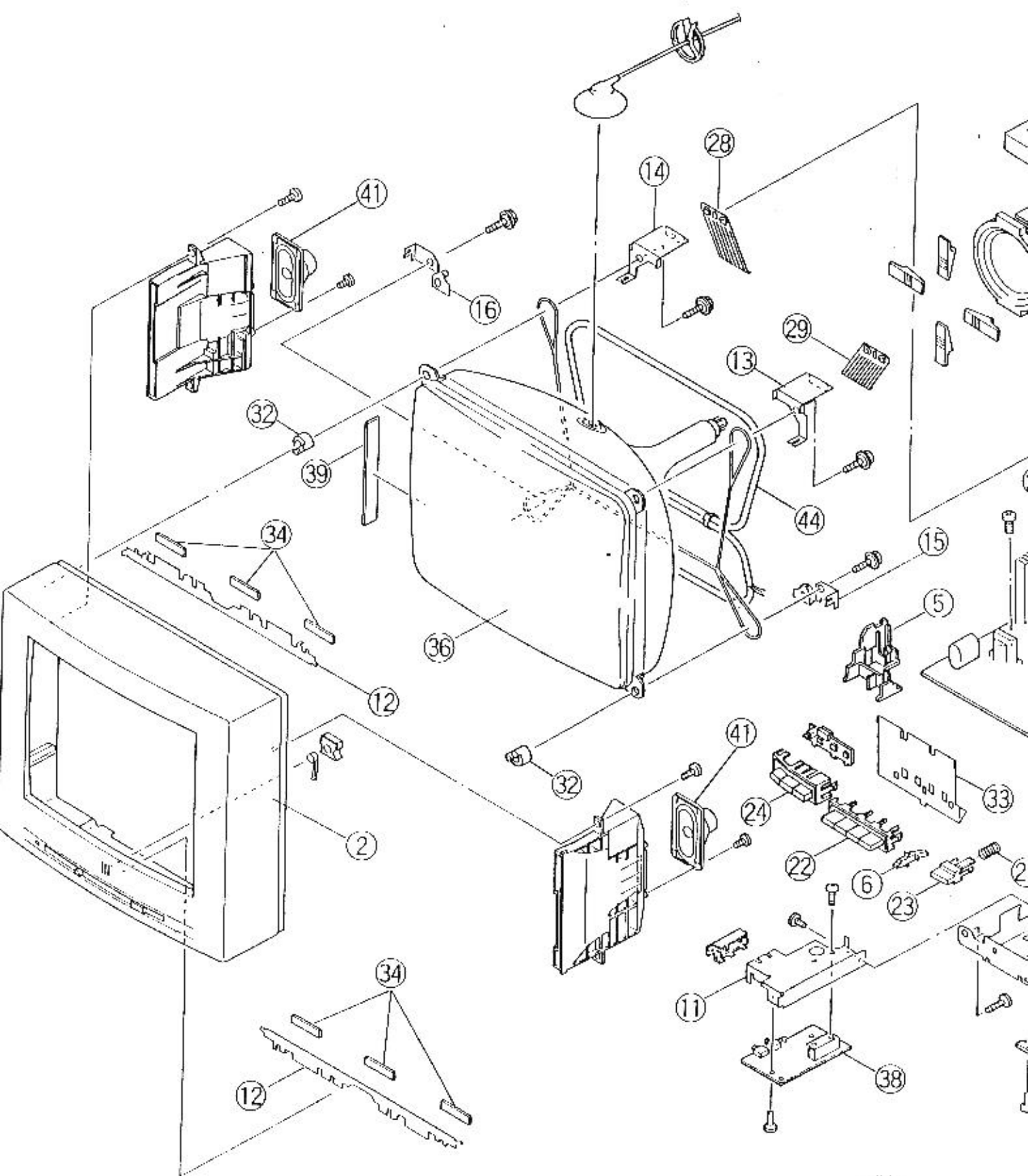
CONDITION
1024 X 768 / H 60KHz / V 75Hz



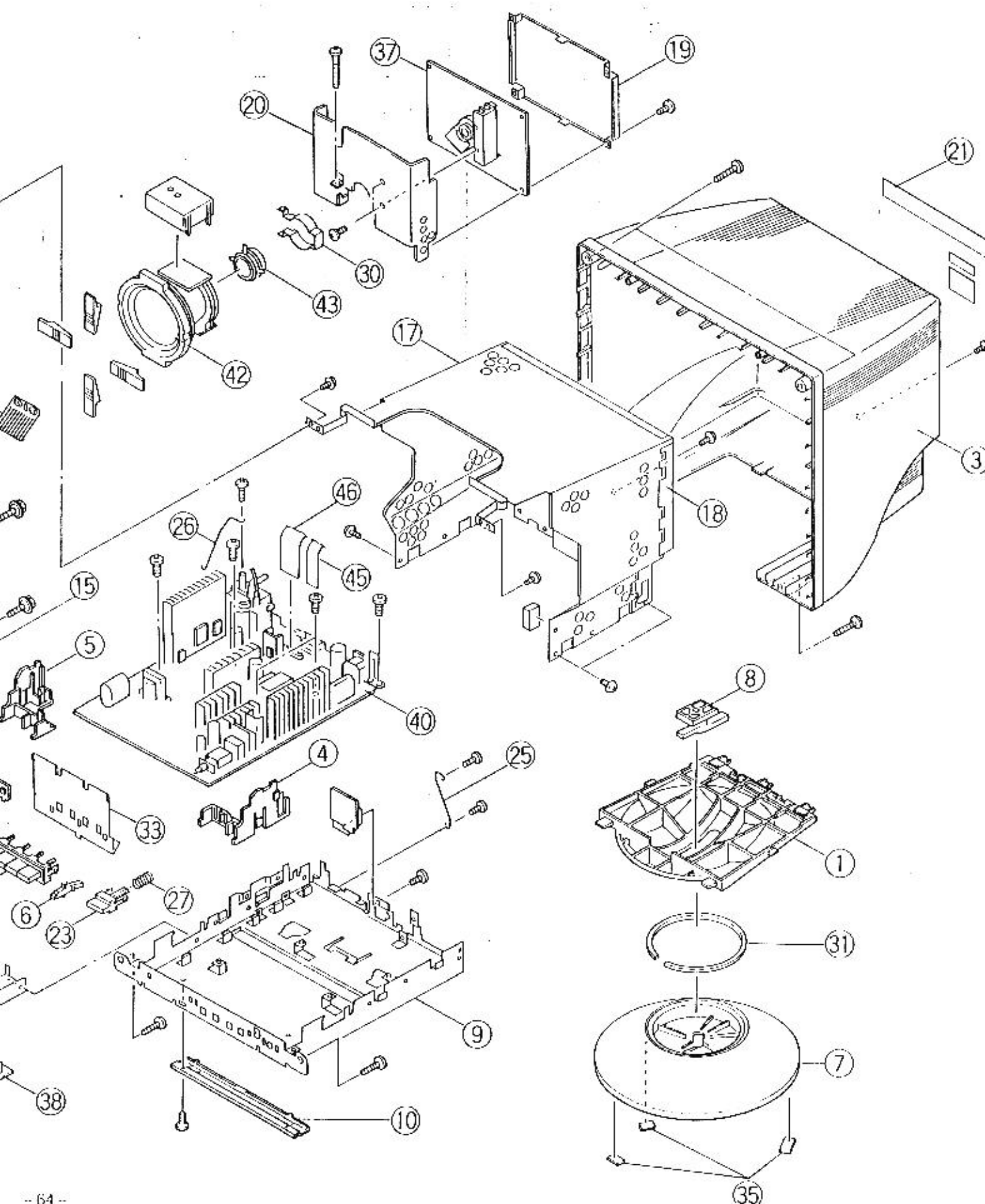
INCORRECT V. POSITION CONTROL

CONDITION
1024 X 768 / H 60KHz / V 75Hz






EXPLODED VIEW





REPLACEMENT PARTS LIST

Important Safety Notice

Components identified by the international symbol  have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.



RESISTOR


PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Carbon	F	± 1%
F	Fuse	J	± 5%
V	Veta Oxide	K	± 10%
S	Solid	M	± 20%
W	Wire Wound	G	± 2%

Part No. Description
Example ERD25TJ104  100K  1/4W

CAPACITOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Ceramic	C	± 0.25pF
E	Electrolytic	D	± 0.5pF
P	Polyester	F	± 1pF
S	Styro	J	± 5%
T	Tantalum	K	± 10%
PP	Polypropylene	L	± 15%
		V	± 20%
		P	+100% - 0%
		Z	-80% - 20%

Part No. Description
Example ECKF1H103ZF  0.01μF  50V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
CABINET & MAIN PARTS			28	TES9529	CRT SPRING(R-UPPER)
	1TKY859511	BOTTOM CABINET	29	TES9530	CRT SPRING(L-UPPER)
	2TTE8722A01-1	ESCUTCHEON	30	TES9531	CRT PCB HOLDER
	3TKJ894301	REAR COVER	31	TMM15404-1	SPACER RING
	TKXA00401	TILT COIL HOLDER		TMM15414	CLAMPER(SMALL)
	4TKX872101	CRT SUPPORTER(R)		MM6428-1	LEAD CLAMPER
	5TKX872201	CRT SUPPORTER(L)		MM7464	LEAD CLAMPER(SMALL)
	6TKK859315	LED GUIDE		MM7468	CLAMPER
	7KK859745	CONNECTOR COVER	32	TMM85576-1	CRT RUBBER
	7KK859762	JACK PANEL		TMM85586	RUBBER(WEDGE)
	7TKK859979	PEDESTAL		TMM85597	MICROPHONE RUBBER
	8TKK859980	CENTER POST	33	TMKE003	BUTTON SPACER
	9TUX86194	BOTTOM PLATE	34	TMKG001	RUBBER(FOR RADIATOR)
	10TLX86195	BOTTOM PLATE BRACKET		TMKG003	RUBBER(FOR SHIELD CASE)
	11TLX87723	AUDIO PCB BRACKET	35	TMK84990	SET LEG
	12TSA43001	RADIATOR		TMK85572	FERRITE STICK
	13TUC86980	EARTH METAL(R-UPPER)		TMK87711	MICROPHONE SPONGE
	14TUC86981	EARTH METAL(L-UPPER)		THE0019	SCREW(FOR CRT PCB HOLDER)
	15TUC86982	EARTH METAL(R-UNDER)		THT1027	SCREW(FOR CRT)
	16TUC86983	EARTH METAL(L-UNDER)		THT1069	SCREW(FOR SHIELD CASE)
	17TUC86984	SHIELD CASE		XTB4+12J	SCREW
	18TUC86985	SHIELD CASE(REAR)		XTB5+16A	SCREW
	TUC87308	EARTH METAL(D-SUB)		XTN5+16A	SCREW
	19TUC87579	SHIELD CASE(CRT PCB)		XTV3+10A	SCREW
	20TUC87580	SHIELD PLATE(CRT PCB)		XTV3+6J	SCREW
	21TBMCO39	MODEL PLATE<-M>		XYA4+EF8	SCREW
	21TBMCO40	MODEL PLATE<-E>		XYE3+EU10	SCREW
	21TBMCO41	MODEL PLATE<-A>		36M41KH140X-W	PICTURE TUBE
	22TBX8752301	KNOB(CONTROL)	37	TNP800970-22	PC BOARD W/COMPONENT(CR)
	23TBX8752501	KNOB(POWER SWITCH)	38	TNP800974-21	PC BOARD W/COMPONENT
	24TBX8753001	KNOB(AUDIO)			(AUDIO/CONTROL/TERMINA)
	25TES8365	FBT SPRING	39	TNP800975-24	PC BOARD W/COMPONENT(TO
	26TES8366	FBT SPRING(HOOK)	40	TNP800975-24	PC BOARD W/COMPONENT
	TES9148-3	SPRING(CRT EARTH)			(MAIN)
	27TES9296	SPRING(POWER SWITCH)	41	EAG903A	DOME SPEAKER
			42	MEV41GH0	DEFLECTION YOKE
			43	ETC33D53NC	CONVERGENCE COIL

Ref.No	Part No.	Description	Ref.No.	Part No.	Description
	TLK88800ST	FILE COIL	IC876	IC78L9050-MA	IC
	40 TLK85909BT	DEGAUSS COIL	IC877	SI-3025F	HYBRID IC
	TNQS0970	MICROPHONE	IC901	VC80219-1E	IC
	TSXFO05	AUDIO CORD	IC902	VR84J023	IC
	TSXFO05	MICROPHONE CORD	IC1301W52226SP		IC
	TSX451E-1	SIGNAL CORD	IC1302EY07PY2		HYBRID IC
	TSX843E-1	POWER CORD<-A,-E>	IC1303LM324MX		IC
	TSX941E	POWER CORD<-M>	IC1304LM2931CMX		IC
	45TSX9809	FLAT CORD(10P)	IC1305L304330		IC
	45TSX9810	FLAT CORD(22P)	IC1306M8883465PFTF		IC
	UT5999	HEXAGON POST	IC1307L78M08T		IC
	TSXX007	2P/3P CONNECTOR ASSY	IC1308MM74HC4056MX		IC
	TSXX008	2P CONNECTOR ASSY	IC2401L44270		IC
	TSXX009	1P TERMINAL ASSY	IC2402CXA127945		IC
	TSXX010	2P CONNECTOR ASSY			TRANSISTORS
	TXAUT02P750	2P CONNECTOR ASSY	Q11	2SK1470TD	TRANSISTOR
	TXAUT04P828	4P CONNECTOR ASSY	Q12	2SD602R	TRANSISTOR
	TXAUT05P482	5P CONNECTOR ASSY	Q13	2SC4080DET0	TRANSISTOR
	TXAUT05P483	5P CONNECTOR ASSY	Q14	2SC4080DET0	TRANSISTOR
	TXAUT06P580	6P CONNECTOR ASSY	Q15	2SA1575DET0	TRANSISTOR
	TXA3A1733NM	CRT EARTH LEAD	Q101	2SD1994AR	TRANSISTOR
	TSN85511	MAGNET	Q102	2SB1322AR	TRANSISTOR
	TAF21519Q	POLYESTER TAPE(20M)	Q103	2SD1994AR	TRANSISTOR
	TAF72425Q	COTTON TAPE(55M)	Q104	2SB1322AR	TRANSISTOR
	TAF9024Q	MAIRA TAPE	Q250	XDC114EU	TRANSISTOR
	TPCA02201	OUTER CARTON	Q251	XDA114EU	TRANSISTOR
	TXAPD1D1733F	FILLER	Q252	XDC114EU	TRANSISTOR
	TPB14109-2	SET COVER	Q303	2SC4081R	TRANSISTOR
	TQE8513-2	FUN BAG COVER	Q307	2SC3938R	TRANSISTOR
	TOBE0010	INSTRUCTION BOOK	Q308	XDC114EU	TRANSISTOR
	TQF80720	NHW LABEL	Q309	2SC3938R	TRANSISTOR
	TQF82880	HIGH VOLTAGE LABEL	Q319	2SC4620V25	TRANSISTOR
	TQF83825-6	SERIAL NO. LABEL	Q331	2SA10180	TRANSISTOR
	TQF85363-1	CARTON LABEL<-M>	Q333	XDC114EU	TRANSISTOR
	TQF85363-5	CARTON LABEL<-A>	Q334	XDC114EU	TRANSISTOR
	TQF85363-8	CARTON LABEL<-E>	Q401	XDC114EU	TRANSISTOR
	TQF86553	PTB LABEL(INNER)	Q494	2SD1994AQ	TRANSISTOR
	TQF86574	US PATENTS LABEL	Q495	2SB1322R	TRANSISTOR
	TQF86608	EARTH CAUTION LABEL	Q501	XDC114EU	TRANSISTOR
	TQF86621	BAR CODE LABEL	Q549	2SK2015Z	TRANSISTOR
	I.C		Q550	2SC5243002FD	TRANSISTOR
IC101	LM324MX	IC	Q560	XDC114EU	TRANSISTOR
IC201	M52346SP	IC	Q561	2SK2161YB	TRANSISTOR
IC280	24LC21TJ5N	IC	Q562	XDC114EU	TRANSISTOR
IC302	TDAB145	IC	Q563	2SK2161YB	TRANSISTOR
IC351	LM358MX	IC	Q568	XDC114EU	TRANSISTOR
IC401	LM358MX	IC	Q569	XDC114EU	TRANSISTOR
IC490	TDA9302H	IC	Q572	2SB1220R	TRANSISTOR
IC501	UPC1883	IC	Q573	2SD1273PLB	TRANSISTOR
IC502	M8883465PFTF	IC	Q574	2SD1824R	TRANSISTOR
IC503	AN78L09M-E1	IC	Q575	2SB792AR	TRANSISTOR
IC504	LM358MX	IC	Q584	2SD2005R	TRANSISTOR
IC550	AN6531	IC	Q585	2SB1413R	TRANSISTOR
IC601	LM324MX	IC	Q602	XDC114EU	TRANSISTOR
IC680	VS1103	IC	Q672	2SC3938R	TRANSISTOR
IC751	M8883465PFTF	IC	Q673	XDC114EU	TRANSISTOR
IC820	STR-56533	HYBRID IC	Q674	2SC4212-	TRANSISTOR
IC870	M5F7824L	IC	Q675	2SD1664Q	TRANSISTOR
IC871	SI-3120FALF	IC	Q676	2SB1132Q	TRANSISTOR
IC873	SI-3240CA	HYBRID IC	Q680	IRF1634G	TRANSISTOR
IC875	SI-3120FALF	IC	Q682	XDC114EU	TRANSISTOR

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q893	XDC114EJ	TRANSISTOR	D550	1SS353	DIODE
Q801	25B1414R	TRANSISTOR	D551	ERA81004	DIODE
Q802	25C1473QNC	TRANSISTOR	D552	RP3F014-302	DIODE
Q803	25C18194R	TRANSISTOR	D555	FMP-3FU	DIODE
Q809	25C3933R	TRANSISTOR	D556	MA30WA	DIODE
Q811	XDC114EL	TRANSISTOR	D558	DTZTT1115C	DIODE
Q812	XDC114EL	TRANSISTOR	D560	TVSRG2A	DIODE
Q813	XDC114EL	TRANSISTOR	D561	EU02A	DIODE
Q814	XDC114EL	TRANSISTOR	D562	ERC30-02	DIODE
Q816	XDC114EL	TRANSISTOR	D563	ERC30-02	DIODE
Q820	25C4620V25	TRANSISTOR	D564	EU02A	DIODE
Q822	25C1473AR	TRANSISTOR	D601	ERA34-10	DIODE
Q823	XDC114EU	TRANSISTOR	D602	ERA34-10	DIODE
Q824	25D1820AR	TRANSISTOR	D603	1SS353	DIODE
Q825	25B1220R	TRANSISTOR	D604	EU02	DIODE
Q891	XDA114EL	TRANSISTOR	D605	1SS353	DIODE
Q901	XDA114EL	TRANSISTOR	D608	MA167	DIODE
Q903	XDC114EU	TRANSISTOR	D661	DTZTT1115C	DIODE
Q904	XDA114EU	TRANSISTOR	D667	1SS353	DIODE
Q1001	25C3811R	TRANSISTOR	D668	1SS353	DIODE
Q1002	25C3811R	TRANSISTOR	D669	1SS353	DIODE
Q1101	25C3811R	TRANSISTOR	D672	1SS353	DIODE
Q1102	25C3811R	TRANSISTOR	D674	ERA18-04	DIODE
Q1201	25C3811R	TRANSISTOR	D680	DTZTT1115C	DIODE
Q1202	25C3811R	TRANSISTOR	D681	CB903-4	DIODE
Q1301	XDC114EJ	TRANSISTOR	D682	DTZTT117R5C	DIODE
Q1302	XDC114EU	TRANSISTOR	△ D801	ERZVEAV431	VARIATOR
Q1303	25C3938R	TRANSISTOR	△ D903	ERZVEAV431	VARIATOR
Q1304	XDC114EU	TRANSISTOR	D807	EG01Z	DIODE
			D808	RBV406M	DIODE
	DIODES		D809	1SS353	DIODE
D11	MA153A	DIODE	D810	DTZTT1124B	DIODE
D12	MA3150M	DIODE	D817	DTZTT1118B	DIODE
D13	MA174	DIODE	D821	ERA34-10	DIODE
D201	1SS353	DIODE	D840	ERB93-02	DIODE
D205	DTZTT115R6B	DIODE	D841	TVSRG2A	DIODE
D207	DTZTT115R18	DIODE	D842	ERC3806	DIODE
D280	DTZTT115R6B	DIODE	D843	TVSRG2	DIODE
D281	DTZTT115R6B	DIODE	D844	RL4Z	DIODE
D282	DTZTT115R6B	DIODE	D845	ERC30-02	DIODE
D283	DTZTT115R6B	DIODE	D847	DTZTT1124A	DIODE
D302	DTZTT119R1C	DIODE	D848	EM01Z	DIODE
D303	EL02ZW	DIODE	D850	TVSRG2A	DIODE
D304	EU02ZW	DIODE	D852	DTZTT116R8A	DIODE
D305	1SS353	DIODE	D871	DTZTT1118B	DIODE
D306	1SS353	DIODE	D879	DTZTT1115B	DIODE
D307	1SS353	DIODE	D891	T410-8000	DIODE
D308	1SS353	DIODE	D894	ERB4408	DIODE
D330	HZT33-09TD	DIODE	D902	DTZTT115R1B	DIODE
D331	HZT33-09TD	DIODE	D904	RB706F40	DIODE
D381	TAX125X103MA	VARIATOR	D905	DTZTT115R6B	DIODE
D382	ERZC05DK201U	VARIATOR	D907	DTZTT115R6B	DIODE
D383	EU02Z	DIODE	D912	MTZU5R6B	DIODE
D401	EU02	DIODE	D913	DTZTT115R6B	DIODE
D402	MA7100A	DIODE	D914	DTZTT115R6B	DIODE
D404	MA1180L	DIODE	D915	DTZTT115R6B	DIODE
D405	1SS353	DIODE	D940	SML1816W	DIODE(LED)
D408	DTZTT1136B	DIODE	D941	LN417YP	DIODE(LED)
D497	MA30WA	DIODE	D946	MA142WK	DIODE
D501	1SS353	DIODE	D947	DTZTT115R6B	DIODE
D505	DTZTT116R2B	DIODE	D948	DTZTT115R6B	DIODE
D507	DTZTT114R7B	DIODE	D950	DTZTT115R6B	DIODE

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
D951	DTZTT115R6B	DIODE	L2301	EXCELD35C	LC COMBINATION
D950	DTZTT115R6B	DIODE	T351	TLH55906Z	TRANSFORMER
D951	DTZTT115R6B	DIODE	T541	ET522AE113AC	TRANSFORMER
D952	DTZTT115R6B	DIODE	Δ T601	ETF39LB6AZ	FLYBACK TRANSFORMER
D953	DTZTT115R6B	DIODE	Δ T801	FLP55233R1	TRANSFORMER
D1001	155353	DIODE		CONTROL	
D1002	155353	DIODE	NR584	EVMEGSACOB13	CONTROL 3 1K OHM
D1008	MA142WK	DIODE	NR801	EVMF35A00623	CONTROL 3 2K OHM
D1101	155353	DIODE		CAPACITORS	
D1102	155353	DIODE			
D1109	MA142WK	DIODE	C11	ECUX1C225ZFW	C 2.2UF Z 16V
D1201	155353	DIODE	C12	ECUX1C334K3W	C 0.33UF K 16V
D1202	155353	DIODE	C13	ECUX1H104ZFX	C 0.1UF Z 50V
D1208	MA142WK	DIODE	C14	ECUX1H104ZFX	C 0.1UF Z 50V
D1302	MA29TA	DIODE	C16	ECUX1H551KBN	C 550PF K 50V
D1303	DTZTT115R6B	DIODE	C17	TAC1022Z104H	C 0.1UF K 200V
D1304	DTZTT115R6B	DIODE	C101	ECUX1H103KBG	C 0.01UF K 50V
D1305	DTZTT115R6B	DIODE	C106	ECUX1E334ZFW	C 0.33UF Z 25V
D1306	DTZTT115R6B	DIODE	C107	ECEA1HGE4R7	E 4.7UF 50V
D1307	DTZTT115R6B	DIODE	C108	ECEA1HGE4R7	E 4.7UF 50V
D1311	DTZTT115R6B	DIODE	C112	ECUX1E334ZFW	C 0.33UF Z 25V
D1401	155353	DIODE	C201	ECQV1H474JM	P 0.47UF J 50V
D1402	155353	DIODE	C202	ECEA1HGE010	E 1UF 50V
D2401	MA7091A	DIODE	C203	ECEA1HGE010	E 1UF 50V
D2402	DTZTT115C	DIODE	C204	ECUX1H472K3G	C 4700PF K 50V
D2403	DTZTT119R1B	DIODE	C205	ECUX1H103KBG	C 0.01UF K 50V
D2404	DTZTT119R1B	DIODE	C206	ECUX1H103KBG	C 0.01UF K 50V
	CDIL & TRANSFORMERS		C207	ECEA1HGE2R2	E 2.2UF 50V
L381	TSK8029	FERRITE CORE	C208	ECEA1HGER47	E 0.47UF 50V
L383	TSK8029	FERRITE CORE	C209	ECUX1H333K3X	C 0.033UF K 50V
L521	ELEV470KA	PEAKING COIL	C210	ECUX1H102KBN	C 1000PF K 50V
L561	TLUACNB2R2M	PEAKING COIL	C211	ECUX1H102KBN	C 1000PF K 50V
L570	ELC08D096D	CHOKE COIL	C212	ECEA1CGE101	E 100UF 16V
L573	TLH2001	COIL	C213	ECUX1H102KBN	C 1000PF K 50V
L575	TLH85815T	COIL	C214	ECQV1H474JM	P 0.47UF J 50V
L578	TLH85819Z	COIL	C215	ECEA1CGE101	E 100UF 16V
L581	TLPB5709R	CHOKE COIL	C280	ECUX1H103KBG	C 0.01UF K 50V
Δ L801	ELF18D656J	LINE FILTER	C305	ECUX1H221KBN	C 220PF K 50V
Δ L802	ELF18D656J	LINE FILTER	C306	ECEA1HGE330	E 33UF 50V
L805	TSK8031	FERRITE CORE	C309	ECUX1H103KBG	C 0.01UF K 50V
L821	EXCELD35C	LC COMBINATION	C318	ECKD2H151K85	C 150PF K 500V
L822	EXCELD35C	LC COMBINATION	C319	ECQV1H473JM	P 0.047UF J 50V
L823	EXCELD35C	LC COMBINATION	C320	ECEA1HGE100	E 10UF 50V
L840	EXCELD35C	LC COMBINATION	C321	ECUX1H222JCX	C 2200PF J 50V
L844	EXCELD35C	LC COMBINATION	C323	ECKD3A102J8P	C 1000PF J 1KV
L845	EXCELD35C	LC COMBINATION	C326	ECEA1EGE100	E 10UF 25V
L851	EXCELD35C	LC COMBINATION	C328	ECUX1H103KBG	C 0.01UF K 50V
L852	EXCELD35C	LC COMBINATION	C339	ECQE2473KF	P 0.047UF K 200V
L853	EXCELD35C	LC COMBINATION	C372	ECEA1EGE330	E 33UF 25V
L1002	ELEXHR33KA	PEAKING COIL	C375	ECUX1H103KBG	C 0.01UF K 50V
L1101	ELEXHR22KA	PEAKING COIL	C376	ECUX1H103KBG	C 0.01UF K 50V
L1102	ELEXHR33KA	PEAKING COIL	C377	ECEA1EGE100	E 10UF 25V
L1202	ELEXHR33KA	PEAKING COIL	C378	ECEA1VGE101	E 100UF 35V
L1301	ELEXH100KA	PEAKING COIL	C381	ECQE2123JF	P 0.012UF J 200V
L1302	TLUACNB821K	PEAKING COIL	C382	ECQE2124JF	P 0.012UF J 200V
L1303	TSK8029	FERRITE CORE	C383	ECQE2103JF	P 0.01UF J 200V
L1307	ELJFA100KB	CHIP COIL	C385	ECQV1H105JM	P 1.0UF J 50V
L1308	ELEXH151KA	PEAKING COIL	C386	ECQE2103JF	P 0.01UF J 200V
L2001	TSKX006	FERRITE CORE	C393	ECKD3D272KBP	C 2700PF K 2KV
L2002	TSKX006	FERRITE CORE	C394	TCUX2H101JCM	C 100PF J 500V
			C401	ECEA1HGE010	E 1UF 50V

Ref No.	Part No.	Description	Ref No.	Part No.	Description
C402	ECUX1H103KBG	C 0.01UF K 50V	C590	ECUX1H102KBN	C 1000PF K 50V
C403	ECUX1H103KBG	C 0.01UF K 50V	C601	ECEA2CGE2R2	E 2.2UF 160V
C404	ECUX1H103KBG	C 0.01UF K 50V	C602	ECQE2474JF	P 0.47UF J 200V
C405	ECEA1CGE101	E 100UF 16V	C603	ECUX1H222KBN	C 2200PF K 50V
C406	ECEA1CGE470	E 47UF 16V	C604	ECEA24GE220	E 22UF 100V
C407	ECEA1EGE221	E 220UF 25V	C605	ECQE10473MU	P 0.047UF M 1KV
C408	ECEA1HGE102	E 1000UF 50V	C606	ECEA1HGE010	E 1UF 50V
C409	ECQV1H224JM	P 0.22UF J 50V	C607	ECUX1H102JCK	C 1000PF J 50V
C410	ECEA1HGE100	E 10UF 50V	C608	ECKD2H102KBS	C 1000PF K 500V
C412	ECEA1VGE222	E 2200UF 35V	C609	ECKF1H682KB	C 6800PF K 50V
C413	ECEA1EGE470	E 47UF 25V	C611	ECEA2EGE100	E 10UF 250V
C414	ECUX1H331KBN	C 330PF K 50V	C612	ECEA1EGE100	E 10UF 25V
C415	ECYX1H682JCK	C 6800PF J 50V	C660	ECEA1CFE560	E 56UF 16V
C417	ECQV1H334JM	P 0.33UF J 50V	C661	ECUX1H102JCK	C 1000PF J 50V
C418	ECUX1H104ZFX	C 0.1UF Z 50V	C664	ECKD2H272KBS	C 2700PF K 500V
C419	ECUX1H104ZFX	C 0.1UF Z 50V	C665	ECUX1H121JCK	C 120PF J 50V
C421	ECUX1H683KBN	C 0.068UF K 50V	C666	ECUX1H102JCK	C 1000PF J 50V
C423	ECEA1VGE101	E 100UF 35V	C667	ECUX1H221JCK	C 220PF J 50V
C502	ECEA1CGE221	E 220UF 16V	C671	ECUX1C105ZFW	C 1.0UF Z 16V
C503	ECUX1H103KBG	C 0.01UF K 50V	C672	ECEA1HGE4R7	E 4.7UF 50V
C504	ECEA1EGE100	E 10UF 25V	C674	ECEA1VGE470	E 47UF 35V
C505	ECUX1H102JCK	C 1000PF J 50V	C679	EC41JF0120	E 12UF 63V
C506	ECUX1H681JCK	C 680PF J 50V	C681	ECA2CGE221W	E 220UF 160V
C507	ECUX1H103KBG	C 0.01UF K 50V	C701	ECUX1H103KBG	C 0.01UF K 50V
C508	ECUX1C2252FW	C 2.2UF Z 16V	C702	ECUX1H103KBG	C 0.01UF K 50V
C509	ECUX1H104ZFX	C 0.1UF Z 50V	C703	ECUX1H103KBG	C 0.01UF K 50V
C511	ECUX1H104ZFX	C 0.1UF Z 50V	C704	ECUX1H103KBG	C 0.01UF K 50V
C512	ECUX1H104ZFX	C 0.1UF Z 50V	C707	ECUX1H103KBG	C 0.01UF K 50V
C513	ECUX1H102KBN	C 1000PF K 50V	C709	ECEA1EGE101	E 100UF 25V
C514	ECUX1H104ZFX	C 0.1UF Z 50V	C711	ECUX1E563K3X	C 0.056UF K 25V
C515	ECEA1CGN100	E 10UF 16V	C753	ECUX1H103KBG	C 0.01UF K 50V
C516	ECEA1HGE2R2	E 2.2UF 50V	△ C801	ECQU2A105MVZ	PP 1.0UF M 250V
C517	ECEA1CGE221	E 220UF 16V	△ C802	ECKDRS102KB	C 1000PF K
C520	ECEA1EGE470	E 47UF 25V	△ C803	ECKDRS102KB	C 1000PF K
C521	ECEA0JGE471	E 470UF 6.3V	△ C805	ECQU2A105MVZ	PP 1.0UF M 250V
C526	ECEA1HGE3R3	E 3.3UF 50V	C814	TACTA2G105JC	PP 1UF J 400V
C527	ECEA1HGE3R3	E 3.3UF 50V	C815	ECQE4104JF	P 0.1UF J 400V
C528	ECEA1CGE102	E 1000UF 16V	C820	ECUX1H223KBN	C 0.022UF K 50V
C550	ECEA1VGE101	E 100UF 35V	C821	ECQE2473KF	P 0.047UF K 200V
C551	ECEA1VGE470	E 47UF 35V	C822	ECUX1H222KBN	C 2200PF K 50V
C552	ECKD2H332KBS	C 3300PF K 500V	C823	ECEA1HGE4R7	E 4.7UF 50V
C555	ECKD3F561JBP	C 560PF J 3KV	C824	ECEA1HGE100	E 10UF 50V
C556	TACTA2G244JC	PP 4700PF H 1.5KV	C825	ECEA1HGN3R3	E 3.3UF 50V
C561	TACTA2G274JC	PP 0.27UF J 400V	C827	ECUX1H681KBN	C 680PF K 50V
C562	TACTA2G105JC	PP 1UF J 400V	C828	ECEA1HGE470	E 47UF 50V
C563	TACTA2G244JC	PP 0.24UF J 400V	C829	ECEA1VGE221	E 220UF 35V
C565	TACTA2G244JC	PP 0.24UF J 400V	△ C832	ECKDRS102KB	C 1000PF K
C566	ECUX1H473ZFM	C 0.047UF Z 50V	△ C834	ECKDRS102KB	C 1000PF K
C567	ECUX1H473ZFM	C 0.047UF Z 50V	C839	ECEA0JGE331	E 330UF 6.3V
C570	ECKC3D821JBP	C 820PF J 2KV	C840	ECEA1HGE4R7	E 4.7UF 50V
C571	ECQF627202	PP 2700PF J 600V	C842	ECKD3D151JBP	C 150PF J 2KV
C572	ECQE1335KF	P 3.3UF K 100V	C844	ECA2CGE221W	E 220UF 160V
C573	ECKD2H681KBS	C 680PF K 500V	C853	ECEA1EGE100	E 10UF 25V
C574	ECKD2H332KBS	C 3300PF K 500V	C854	ECQV1H224JM	P 0.22UF J 50V
C576	ECUX1H103KBG	C 0.01UF K 50V	C861	ECOS2E3681CA	E 680UF 250V
C577	ECUX1H103KBG	C 0.01UF K 50V	C862	ECA2CGE221W	E 220UF 160V
C579	ECUX1H222ZFN	C 2200PF Z 50V	C863	ECEA1HGE102	E 1000UF 50V
C580	ECEA1CGE470	E 47UF 16V	C864	ECEA1EGE332	E 3300UF 25V
C581	ECQV1H684JM	P 0.68UF J 50V	C865	ECA1EFO102	E 1000UF 25V
C582	ECUX1H103KBG	C 0.01UF K 50V	C866	ECEA1CGE101	E 100UF 16V
C583	ECUX1C105ZFW	C 1.0UF Z 16V	C867	ECEA1VGE102	E 1000UF 35V
C585	ECUX1H103KBG	C 0.01UF K 50V	C868	ERDS2TCO	C 0 DHM 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C870	ECEA1HGE101	E 100UF 50V	C1307	ECUX1H1000CN	C 10PF D 50V
C871	ECEA1EGE221	E 220UF 25V	C1309	TACCG102P200	C 1000PF 200V
C873	ECUX1H104ZFX	C 0.1UF Z 50V	C1310	ECEA2CGE220	E 22UF 160V
C874	ECUX1H104ZFX	C 0.1UF Z 50V	C1311	ECUX1H103K8G	C 0.01UF K 50V
C875	ECEA1EGE331	E 330UF 25V	C1312	ECUX1C105ZFW	C 1.0UF Z 16V
C876	ECEA1HGE221	E 220UF 50V	C1314	ECEA1CGE470	E 47UF 16V
C877	ECUX1H104ZFX	C 0.1UF Z 50V	C1315	ECUX1H103K8G	C 0.01UF K 50V
C879	ECEA1AGE101	E 100UF 10V	C1316	ECUX1H103K8G	C 0.01UF K 50V
C890	TACCG335P630	P 3.3UF K 630V	C1318	ECUX1H103K8G	C 0.01UF K 50V
C892	ECUX1H104ZFX	C 0.1UF Z 50V	C1320	ECUX1H333K8X	C 0.033UF K 50V
C896	ECQ6473KF	P 0.047UF K 500V	C1321	ECUX1H220JCN	C 22PF J 50V
C901	ECUX1H220JCN	C 22PF J 50V	C1322	ECUX1H220JCN	C 22PF J 50V
C902	ECEA1AGE101	E 100UF 10V	C1323	ECEA1AGE101	E 100UF 10V
C903	ECUX1H103K8G	C 0.01UF K 50V	C1324	ECUX1H220JCN	C 22PF J 50V
C904	ECUX1H103K8G	C 0.01UF K 50V	C1325	ECEA1CGE101	E 100UF 16V
C905	ECEA1HGE010	E 1UF 50V	C1326	ECUX1H683K8W	C 0.068UF K 50V
C906	ECUX1H103K8G	C 0.01UF K 50V	C1327	ECEA1HGE100	E 10UF 50V
C907	ECUX1H221K8N	C 220PF K 50V	C1328	ECUX1H101JCG	C 100PF J 50V
C908	ECUX1H150JCN	C 15PF J 50V	C1329	ECUX1H103K8G	C 0.01UF K 50V
C909	ECUX1H150JCN	C 15PF J 50V	C1410	ECUX1C105ZFW	C 1.0UF Z 16V
C910	ECUX1H221K8N	C 220PF K 50V	C1411	ECUX1H682K8G	C 6800PF K 50V
C911	ECUX1H221K8N	C 220PF K 50V	C2301	ECUX1H562K8G	C 5600PF K 50V
C912	ECUX1H333K8X	C 0.033UF K 50V	C2302	ECUX1H562K8G	C 5600PF K 50V
C1001	ECEA1EGE100	E 10UF 25V	C2303	ECEA1EGE220	E 22UF 25V
C1002	ECEA1CGE470	E 47UF 16V	C2304	ECEA1HGE010	E 1UF 50V
C1003	ECUX1H103K8G	C 0.01UF K 50V	C2305	ECEA1CGE221	E 220UF 16V
C1004	ECUX1H103K8G	C 0.01UF K 50V	C2306	ECEA1HGE010	E 1UF 50V
C1005	ECQV1H105JM	P 1.0UF J 50V	C2307	ECEA1EGE220	E 22UF 25V
C1006	ECUX1H111JC	C 110PF J 50V	C2308	ECEA1CGE471	E 470UF 16V
C1008	ECEA2CGE220	E 22UF 160V	C2309	ECUX1H104ZFX	C 0.1UF Z 50V
C1009	ECUX1H103K8G	C 0.01UF K 50V	C2310	ECUX1H104ZFX	C 0.1UF Z 50V
C1010	ECKD2H102K85	C 1000PF K 500V	C2311	ECEA1CGE471	E 470UF 16V
C1013	ECUX1H560JCG	C 56PF J 50V	C2312	ECEA1EGE222	E 2200UF 25V
C1030	ECUX1H220JCN	C 22PF J 50V	C2401	ECEA1HGE2R2	E 2.2UF 50V
C1101	ECEA1EGE100	E 10UF 25V	C2402	ECEA1HGE2R2	E 2.2UF 50V
C1102	ECEA1CGE470	E 47UF 16V	C2403	ECUX1H223K8X	C 0.022UF K 50V
C1103	ECUX1H103K8G	C 0.01UF K 50V	C2404	ECEA1HGER22	E 0.22UF 50V
C1104	ECUX1H103K8G	C 0.01UF K 50V	C2407	ECUX1H223K8X	C 0.022UF K 50V
C1105	ECQV1H105JM	P 1.0UF J 50V	C2408	ECEA1HGER22	E 0.22UF 50V
C1106	ECUX1H111JC	C 110PF J 50V	C2409	ECEA1EGE100	E 10UF 25V
C1109	ECUX1H103K8G	C 0.01UF K 50V	C2410	ECEA1EGE220	E 22UF 25V
C1110	ECKD2H102K85	C 1000PF K 500V	C2411	ECEA1HGE010	E 1UF 50V
C1113	ECUX1H560JCG	C 56PF J 50V	C2412	ECEA1CGE221	E 220UF 16V
C1130	ECUX1H220JCN	C 22PF J 50V	C2413	ECEA1CGE470	E 47UF 16V
C1201	ECEA1EGE100	E 10UF 25V	C2414	ECEA1HGN010	E 1UF 50V
C1202	ECEA1CGE470	E 47UF 16V	C2415	ECUX1H103K8G	C 0.01UF K 50V
C1203	ECUX1H103K8G	C 0.01UF K 50V	RESISTORS		
C1204	ECUX1H103K8G	C 0.01UF K 50V	D941	ERJ6GEYJ221	M 220 OHM J 1/10W
C1205	ECQV1H105JM	P 1.0UF J 50V	J1	ERJ8GCRY000	M 0 OHM 1/8W
C1206	ECUX1H121JCG	C 120PF J 50V	J11	ERJ6GEY0000	M 0 OHM 1/10W
C1207	ECEA2AGE2R2	E 2.2UF 100V	J009	ERDS2TC0	C 0 OHM 1/4W
C1208	ECEA2AGE2R2	E 2.2UF 100V	J010	ERDS2TC0	C 0 OHM 1/4W
C1209	ECUX1H103K8G	C 0.01UF K 50V	J011	ERDS2TC0	C 0 OHM 1/4W
C1210	ECKD2H102K85	C 1000PF K 500V	J012	ERDS2TC0	C 0 OHM 1/4W
C1213	ECUX1H560JCG	C 56PF J 50V	J014	ERDS2TC0	C 0 OHM 1/4W
C1230	ECUX1H220JCN	C 22PF J 50V	J015	ERDS2TC0	C 0 OHM 1/4W
C1301	ECEA1HGE100	E 10UF 50V	J016	ERDS2TC0	C 0 OHM 1/4W
C1302	ECUX1H103K8G	C 0.01UF K 50V	J018	ERDS2TC0	C 0 OHM 1/4W
C1303	ECEA1CGE101	E 100UF 16V	J022	ERDS2TC0	C 0 OHM 1/4W
C1304	ECEA1CGE102	E 1000UF 16V	J023	ERDS2TC0	C 0 OHM 1/4W
C1305	ECUX1H104ZFX	C 0.1UF Z 50V	J025	ERDS2TC0	C 0 OHM 1/4W
C1306	ECUX1C105ZFW	C 1.0UF Z 16V			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
J524	ERJ8GCV0R00	M 0 OHM 1/8W	J2052	ERJ8GCV0R00	M 0 OHM 1/8W
J525	ERJ8GCV0R00	M 0 OHM 1/8W	J2053	ERJ8GCV0R00	M 0 OHM 1/8W
J526	ERJ8GCV0R00	M 0 OHM 1/8W	J2054	ERJ8GCV0R00	M 0 OHM 1/8W
J527	ERJ8GCV0R00	M 0 OHM 1/8W	J2055	ERJ8GCV0R00	M 0 OHM 1/8W
J528	ERJ8GCV0R00	M 0 OHM 1/8W	J2056	ERJ8GCV0R00	M 0 OHM 1/8W
J529	ERJ8GCV0R00	M 0 OHM 1/8W	J2058	ERJ8GCV0R00	M 0 OHM 1/8W
J530	ERJ8GCV0R00	M 0 OHM 1/8W	J2059	ERJ8GCV0R00	M 0 OHM 1/8W
J531	ERJ8GCV0R00	M 0 OHM 1/8W	L1001	ERDS2TC0	C 0 OHM 1/4W
J532	ERJ8GCV0R00	M 0 OHM 1/8W	L1003	ERJ8GCV0R00	M 0 OHM 1/8W
J533	ERJ8GCV0R00	M 0 OHM 1/8W	L1103	ERDS2TC0	C 0 OHM 1/4W
J534	ERJ8GCV0R00	M 0 OHM 1/8W	L1103	ERJ8GCV0R00	M 0 OHM 1/8W
J535	ERJ8GCV0R00	M 0 OHM 1/8W	L1201	ERDS2TC0	C 0 OHM 1/4W
J536	ERJ8GCV0R00	M 0 OHM 1/8W	L1203	ERJ8GCV0R00	M 0 OHM 1/8W
J537	ERJ8GCV0R00	M 0 OHM 1/8W	R11	ERJ6ENF1002	M 10K OHM F 1/10W
J538	ERJ8GCV0R00	M 0 OHM 1/8W	R12	ERJ6ENF4703	M 470K OHM F 1/10W
J539	ERJ8GCV0R00	M 0 OHM 1/8W	R13	ERJ6ENF1802	M 18K OHM F 1/10W
J540	ERJ8GCV0R00	M 0 OHM 1/8W	R14	ERJ6ENF3301	M 3.3K OHM F 1/10W
J541	ERJ8GCV0R00	M 0 OHM 1/8W	R15	TAR10100183	M 18K OHM U 1W
J542	ERJ8GCV0R00	M 0 OHM 1/8W	R16	ERJ6ENF6800	M 680 OHM F 1/10W
J543	ERJ8GCV0R00	M 0 OHM 1/8W	R17	ERJ6ENF5600	M 560 OHM F 1/10W
J544	ERJ8GCV0R00	M 0 OHM 1/8W	R18	TAR10100273H	M 27K OHM U 1W
J545	ERJ8GCV0R00	M 0 OHM 1/8W	R19	ERJ6ENF4702	M 47K OHM F 1/10W
J546	ERJ8GCV0R00	M 0 OHM 1/8W	R20	ERJ6ENF4702	M 47K OHM F 1/10W
J547	ERJ8GCV0R00	M 0 OHM 1/8W	R22	ERJ6GEY0R00	M 0 OHM 1/10W
J548	ERJ8GCV0R00	M 0 OHM 1/8W	R23	ERJ6GEYJ105	M 1M OHM U 1/10W
J549	ERJ8GCV0R00	M 0 OHM 1/8W	R24	ERJ6ENF4703	M 470K OHM F 1/10W
J550	ERJ8GCV0R00	M 0 OHM 1/8W	R25	ERJ6ENF1000	M 100 OHM F 1/10W
J551	ERJ8GCV0R00	M 0 OHM 1/8W	R101	ERJ6ENF6042	M 60.4K OHM F 1/10W
J552	ERJ8GCV0R00	M 0 OHM 1/8W	R102	ERJ6ENF6982	M 69.8K OHM F 1/10W
J553	ERJ8GCV0R00	M 0 OHM 1/8W	R103	ERJ6ENF3742	M 37.4K OHM F 1/10W
J554	ERJ8GCV0R00	M 0 OHM 1/8W	R105	ERJ6GEYJ102	M 1K OHM U 1/10W
J555	ERJ8GCV0R00	M 0 OHM 1/8W	R106	ERJ6GEYJ681	M 680 OHM U 1/10W
J556	ERJ8GCV0R00	M 0 OHM 1/8W	R108	ERJ6ENF1741	M 1.74K OHM F 1/8W
J557	ERJ8GCV0R00	M 0 OHM 1/8W	R109	ERJ6ENF3321	M 3.32K OHM F 1/10W
J558	ERJ8GCV0R00	M 0 OHM 1/8W	R111	ERJ6GEYJ272	M 2.7K OHM U 1/10W
J559	ERJ8GCV0R00	M 0 OHM 1/8W	R113	ERJ8GCVJ272	M 2.7K OHM U 1/8W
J560	ERJ8GCV0R00	M 0 OHM 1/8W	R114	ERJ8GCVJ287	M 2.7 OHM U 1/8W
J561	ERJ8GCV0R00	M 0 OHM 1/8W	R203	ERJ6GEYJ102	M 1K OHM U 1/10W
J562	ERJ8GCV0R00	M 0 OHM 1/8W	R204	ERJ6GEYJ272	M 2.7K OHM U 1/10W
J563	ERJ8GCV0R00	M 0 OHM 1/8W	R205	ERJ6GEYJ106	M 10M OHM U 1/10W
J565	ERJ8GCV0R00	M 0 OHM 1/8W	R206	ERJ6GEYJ472	M 4.7K OHM U 1/10W
J567	ERJ8GCV0R00	M 0 OHM 1/8W	R207	ERJ6GEYJ472	M 4.7K OHM U 1/10W
J568	ERJ8GCV0R00	M 0 OHM 1/8W	R208	ERJ6GEYJ472	M 4.7K OHM U 1/10W
J569	ERJ8GCV0R00	M 0 OHM 1/8W	R212	ERJ6GEYJ182	M 1.8K OHM U 1/10W
J572	ERJ8GCV0R00	M 0 OHM 1/8W	R214	ERJ6GEYJ472	M 4.7K OHM U 1/10W
J573	ERJ8GCV0R00	M 0 OHM 1/8W	R215	ERJ6GEYJ102	M 1K OHM U 1/10W
J574	ERJ8GCV0R00	M 0 OHM 1/8W	R217	ERJ6GEYJ222	M 2.2K OHM U 1/10W
J575	ERJ8GCV0R00	M 0 OHM 1/8W	R218	ERJ6GEYJ562	M 5.6K OHM U 1/10W
J576	ERJ8GCV0R00	M 0 OHM 1/8W	R219	ERDS1FJ391	C 390 OHM U 1/2W
J577	ERJ8GCV0R00	M 0 OHM 1/8W	R220	ERDS1FJ331	C 330 OHM U 1/2W
J580	ERJ8GCV0R00	M 0 OHM 1/8W	R221	ERJ6GEYJ222	M 2.2K OHM U 1/10W
J1301	ERDS2TC0	C 0 OHM 1/4W	R223	ERJ6GEYJ102	M 1K OHM U 1/10W
J2000	ERJ8GCV0R00	M 0 OHM 1/8W	R224	ERJ6ENF2702	M 27K OHM F 1/10W
J2001	ERJ8GCV0R00	M 0 OHM 1/8W	R225	ERJ6ENF2433	M 243K OHM F 1/10W
J2002	ERJ8GCV0R00	M 0 OHM 1/8W	R247	ERJ6GEYJ101	M 100 OHM U 1/10W
J2003	ERJ8GCV0R00	M 0 OHM 1/8W	R248	ERJ6GEYJ101	M 100 OHM U 1/10W
J2004	ERJ8GCV0R00	M 0 OHM 1/8W	R249	ERJ6GEYJ101	M 100 OHM U 1/10W
J2005	ERJ8GCV0R00	M 0 OHM 1/8W	R250	ERJ6GEYJ392	M 3.9K OHM U 1/10W
J2006	ERJ8GCV0R00	M 0 OHM 1/8W	R251	ERJ6GEYJ562	M 5.6K OHM U 1/10W
J2007	ERJ8GCV0R00	M 0 OHM 1/8W	R252	ERJ6GEYJ102	M 1K OHM U 1/10W
J2008	ERJ8GCV0R00	M 0 OHM 1/8W	R281	ERJ6ENF3010	M 301 OHM F 1/8W
J2009	ERJ8GCV0R00	M 0 OHM 1/8W	R282	ERJ6ENF3010	M 301 OHM F 1/8W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R283	ERJ6GEYJ473	M 47K OHM J 1/10W	R419	ERJ8GCVJ272	M 2.7K OHM J 1/8W
R285	ERJ6ENF3010	M 301 OHM F 1/8W	R422	ERG1SJ331	M 330 OHM J 1W
R287	ERJ8GCVJ122	M 1.2K OHM J 1/8W	R423	ERX2SJR82	M 0.82 OHM J 2W
R288	ERJ8GCVJ122	M 1.2K OHM J 1/8W	R424	ERDS1FJ392	C 3.9K OHM J 1/2W
R295	ERDS1FJ103	C 10K OHM J 1/2W	R425	ERJ8GCVJ000	M 0 OHM 1/8W
R301	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R426	ERDS2CKF4421	M 4.42K OHM F 1/4W
R302	ERJ6GEYJ152	M 1.5K OHM J 1/10W	R427	ERDS2TJ1R5	C 1.5 OHM J 1/4W
R303	ERJ6GEYJ223	M 22K OHM J 1/10W	R428	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R304	ERJ6GEYJ102	M 1K OHM J 1/10W	R429	ERQ1CJP4R75	F 4.7 OHM J 1W
R305	ERJ6ENF3402	M 34K OHM F 1/10W	R431	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R306	ERJ6ENF2003	M 200K OHM F 1/10W	R493	ERG2S0680	M 68 OHM J 2W
R307	ERDS1FJ681	C 680 OHM J 1/2W	R494	ERD25FJ3R3K	C 3.3 OHM J 1/4W
R308	ERJ6GEYJ153	M 15K OHM J 1/10W	R495	ERD25FJ3R3K	C 3.3 OHM J 1/4W
R309	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R496	ERG3FJ680	M 68 OHM J 3W
R310	ERJ8GCVJ102	M 1K OHM J 1/8W	R497	ERDS2TJ332	C 3.3K OHM J 1/4W
R311	ERJ6GEYJ153	M 15K OHM J 1/10W	R498	ERG3FJ470	M 47 OHM J 3W
R313	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R500	ERJ6ENF4221	M 4.22K OHM F 1/10W
R316	ERDS1FJ274	C 270K OHM J 1/2W	R502	ERJ6ENF5111	M 5.11K OHM F 1/10W
R317	ERDS1FJ274	C 270K OHM J 1/2W	R503	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R318	ERDS2TJ224	C 220K OHM J 1/4W	R504	ERJ6GEYJ272	M 2.7K OHM J 1/10W
R319	ERJ6GEYJ821	M 820 OHM J 1/10W	R506	ERJ6GEYJ103	M 10K OHM J 1/10W
R320	ERJ8GCVJ822	M 8.2K OHM J 1/8W	R507	ERJ6GEYJ000	M 0 OHM 1/10W
R321	ERDS1FJ153	C 15K OHM J 1/2W	R508	ERD25FJ392K	C 3.9K OHM J 1/4W
R322	ERDS2TJ102	C 1K OHM J 1/4W	R510	ERJ6GEYJ000	M 0 OHM 1/10W
R334	ERDS1FJ274	C 270K OHM J 1/2W	R516	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R336	ERDS1FJ125	C 1.2M OHM J 1/2W	R526	ERJ6ENF2211	M 2.21K OHM F 1/10W
R337	ERJ6GEYJ103	M 10K OHM J 1/10W	R527	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R346	ERJ6ENF3832	M 38.3K OHM F 1/10W	R528	ERJ6ENF8200	M 820 OHM F 1/10W
R347	ERJ6ENF3922	M 39.2K OHM F 1/10W	R534	ERD25FJ103K	C 10K OHM J 1/4W
R348	ERJ6ENF1213	M 121K OHM F 1/10W	R535	ERX1SJR22	M 0.22 OHM J 1W
R363	ERDS1FJ151	C 150 OHM J 1/2W	R536	ERD25FJ103K	C 10K OHM J 1/4W
R371	ERJ6ENF1622	M 16.2K OHM F 1/10W	R537	ERJ6ENF5600	M 560 OHM F 1/10W
R372	ERJ6ENF1002	M 10K OHM F 1/10W	R538	ERJ6ENF1433	M 143K OHM F 1/10W
R373	ERJ6ENF7681	M 7.68K OHM F 1/10W	R540	ERJ12YJ101	M 100 OHM J 1/2W
R374	ERJ6GEYJ103	M 10K OHM J 1/10W	R541	ERJ6GEYJ683	M 68K OHM J 1/10W
R375	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R542	ERJ6ENF3241	M 3.24K OHM F 1/10W
R376	ERJ6ENF5622	M 56.2K OHM F 1/10W	R543	ERJ6GEYJ563	M 56K OHM J 1/10W
R377	ERJ6ENF1102	M 11K OHM F 1/10W	R544	ERJ6ENF1332	M 13.3K OHM F 1/8W
R378	ERJ6ENF1213	M 121K OHM F 1/10W	R545	TARRS5B820J2	M 82 OHM J 5W
R379	ERJ6ENF1782	M 17.8K OHM F 1/10W	R546	TARRS5B561J2	M 560 OHM J 5W
R380	ERDS2TJ121	C 120 OHM J 1/4W	R547	ERJ6GEYJ470	M 47 OHM J 1/10W
R381	ERJ6GEYJ102	M 1K OHM J 1/10W	R548	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R390	ERJ8GCVJ000	M 0 OHM 1/8W	R549	ERG1SJ561	M 560 OHM J 1W
R391	ERJ8GCVJ000	M 0 OHM 1/8W	R550	ERQ12AJR12HK	F 0.12 OHM J 1/2W
R392	ERJ8GCVJ000	M 0 OHM 1/8W	R551	ERX2SJ1R5	M 1.5 OHM J 2W
R393	ERJ8GCVJ000	M 0 OHM 1/8W	R552	ERX2SJ1R8	M 1.8 OHM J 2W
R400	ERD25FJ472K	C 4.7K OHM J 1/4W	R553	ERJ6GEYJ103	M 10K OHM J 1/10W
R401	ERJ6GEYJ470	M 47 OHM J 1/10W	R554	ERX3FJX6R8D	M 6.8 OHM J 3W
R403	ERJ6ENF8252	M 82.5K OHM F 1/10W	R555	ERD25FJ103K	C 10K OHM J 1/4W
R405	ERQ14AJ220	F 22 OHM J 1/4W	R556	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R407	ERJ6GEYJ103	M 10K OHM J 1/10W	R557	ERJ6GEYJ103	M 10K OHM J 1/10W
R408	ERJ6ENF5621	M 5.62K OHM F 1/10W	R558	ERJ6GEYJ103	M 10K OHM J 1/10W
R409	ERJ6ENF1822	M 18.2K OHM F 1/8W	R559	ERJ6GEYJ102	M 1K OHM J 1/10W
R410	ERJ6ENF3651	M 3.65K OHM F 1/10W	R560	ERDS1FJ472	C 4.7K OHM J 1/2W
R411	ERJ6ENF2741	M 2.74K OHM F 1/10W	R561	ERJ6GEYJ100	M 10 OHM J 1/10W
R412	ERJ6ENF8251	M 8.25K OHM F 1/10W	R562	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R413	ERJ6ENF2211	M 2.21K OHM F 1/10W	R564	ERJ6GEYJ100	M 10 OHM J 1/10W
R414	ERJ6ENF1961	M 1.96K OHM F 1/10W	R565	ERDS1FJ472	C 4.7K OHM J 1/2W
R415	ERDS2TJ472	C 4.7K OHM J 1/4W	R566	ERJ8GCVJ472	M 4.7K OHM J 1/8W
R416	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R575	ERDS1FJ151	C 150 OHM J 1/2W
R417	ERDS2TJ472	C 4.7K OHM J 1/4W	R576	ERJ6ENF1622	M 16.2K OHM F 1/10W
R418	ERDS2CKF2151	M 2.15K OHM F 1/4W	R577	ERJ6ENF4121	M 4.12K OHM F 1/10W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R573	ERJ6GEYJ102	M 1K OHM J 1/10W	R674	ERDS1FJ391	C 390 OHM J 1/2W
R581	ERD25FJ470K	C 47 OHM J 1/4W	R675	ERQ14AJ101	F 100 OHM J 1/4W
R585	ERDS2TJ101	C 100 OHM J 1/4W	R676	ERQ14AJ101	F 100 OHM J 1/4W
R586	ERDS2TJ101	C 100 OHM J 1/4W	R678	ERDS1FJ220	C 22 OHM J 1/2W
R587	ERDS2TJ332	C 3.3K OHM J 1/4W	R679	ERJ6GEYJ104	M 100K OHM J 1/10W
R588	TARRS5B150J2	M 15 OHM J 5W	R680	ERJ6GEYJ104	M 100K OHM J 1/10W
R589	TARRS5B150J2	M 15 OHM J 5W	R682	ERJ6GEYJ101	M 100 OHM J 1/10W
R590	ERJ6ENF2491	M 2.49K OHM F 1/10W	R683	ERJ6GEYJ822	M 8.2K OHM J 1/10W
R591	ERJ6GEYJ272	M 2.7K OHM J 1/10W	R701	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R592	ERJ6GEYJ103	M 10K OHM J 1/10W	R702	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R593	ERG3FG393	M 39K OHM G 3W	R703	ERJ6GEYJ103	M 10K OHM J 1/10W
R594	ERDS2TJ121	C 120 OHM J 1/4W	R715	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R595	ERDS1FJ1R8	C 1.8 OHM J 1/2W	R719	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R596	ERJ6GEYJ332	M 3.3K OHM J 1/10W	R721	ERJ6GEYJ102	M 1K OHM J 1/10W
R598	ERJ6GEYOR00	M 0 OHM 1/10W	R724	ERJ6GEYJ102	M 1K OHM J 1/10W
R601	ERQ12AJ101	F 100 OHM J 1/2W	R801	ERC12AGK394	S 390K OHM K 1/2W
R602	ERQ14AJ100	F 10 OHM J 1/4W	R802	ERJ6GEYJ273	M 27K OHM J 1/10W
R603	ERJ8GICYOR00	M 0 OHM 1/8W	R804	ERJ8GICY471	M 470 OHM J 1/8W
R605	ERD25FJ100K	C 10 OHM J 1/4W	R805	ERJ6GEYJ102	M 1K OHM J 1/10W
R606	ERDS1FJ184	C 180K OHM J 1/2W	R807	ERJ8GICY562	M 5.6K OHM J 1/8W
R607	ERDS1FJ184	C 180K OHM J 1/2W	R808	ERJ6GEYJ471	M 470 OHM J 1/10W
R608	ERDS1FJ184	C 180K OHM J 1/2W	R809	ERDS1FJ223	C 22K OHM J 1/2W
R609	ERDS1FJ184	C 180K OHM J 1/2W	R810	ERJ6GEYJ391	M 390 OHM J 1/10W
R610	ERDS1FJ184	C 180K OHM J 1/2W	R811	ERDS1FJ224	C 220K OHM J 1/2W
R611	ERG1SJ683	M 68K OHM J 1W	R812	ERDS1FJ274	C 270K OHM J 1/2W
R612	ERJ12YJ274	M 270K OHM J 1/2W	R813	ERJ6GEYJ152	M 1.5K OHM J 1/10W
R613	ERJ12YJ554	M 560K OHM J 1/2W	R814	ERJ6GEYJ151	M 150 OHM J 1/10W
R614	ERJ12YJ184	M 180K OHM J 1/2W	R815	ERJ6GEYJ681	M 680 OHM J 1/10W
R615	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R816	ERJ6ENF2551	M 2.55K OHM F 1/10W
R616	ERJ6GEYJ123	M 12K OHM J 1/10W	R817	ERQ12AJ6R8	F 6.8 OHM J 1/2W
R617	ERJ6ENF3091	M 3.09K OHM F 1/10W	R818	ERJ6GEYOR00	M 0 OHM 1/10W
R618	ERJ12YJ105	M 1M OHM J 1/2W	R819	ERDS2TJ224	C 220K OHM J 1/4W
R620	ERJ8GICY474	M 470K OHM J 1/8W	R820	ERDS2TJ224	C 220K OHM J 1/4W
R621	ERDS2TJ125	C 1.2M OHM J 1/4W	R821	TARRS3B333J2	M 33K OHM J 3W
R622	ERJ6GEYJ223	M 22K OHM J 1/10W	R822	ERJ6GEYJ182	M 1.8K OHM J 1/10W
R623	ERJ8ENF1102	M 11K OHM F 1/8W	R823	ERJ6GEYJ102	M 1K OHM J 1/10W
R624	EROS2CKF1211	M 1.21K OHM F 1/4W	R824	ERJ8GICY681	M 680 OHM J 1/8W
R625	ERJ6ENF2211	M 2.21K OHM F 1/10W	R825	ERJ6GEYJ821	M 820 OHM J 1/10W
R627	ERJ6GEYJ102	M 1K OHM J 1/10W	R826	ERJ6ENF1431	M 1.43K OHM F 1/10W
R628	ERJ6GEYJ105	M 1M OHM J 1/10W	R827	ERJ6ENF4871	M 4.87K OHM F 1/10W
R629	ERJ6GEYJ101	M 100 OHM J 1/10W	R829	ERJ6GEYJ102	M 1K OHM J 1/10W
R630	ERJ6GEYJ102	M 1K OHM J 1/10W	R831	ERJ6GEYJ103	M 10K OHM J 1/10W
R631	ERJ6GEYJ123	M 12K OHM J 1/10W	R833	ERJ6GEYJ102	M 1K OHM J 1/10W
R632	ERJ6GEYJ103	M 10K OHM J 1/10W	R834	ERW2PKR12	W 0.12 OHM K 2W
R643	ERJ6GEYOR00	M 0 OHM 1/10W	R836	ERG25J223	M 22K OHM J 2W
R644	ERJ6GEYJ102	M 1K OHM J 1/10W	R837	ERG25J223	M 22K OHM J 2W
R645	ERJ8GICY222	M 2.2K OHM J 1/8W	R838	ERJ6GEYJ102	M 1K OHM J 1/10W
R648	ERJ6GEYJ102	M 1K OHM J 1/10W	R839	ERDS1FJ223	C 22K OHM J 1/2W
R650	ERJ6GEYJ471	M 470 OHM J 1/10W	R840	ERQ1CKPR39S	F 0.39 OHM K 1W
R660	ERJ8ENF5110	M 511 OHM F 1/8W	R841	ERQ12AJR33HK	F 0.33 OHM J 1/2W
R661	ERJ6GEYJ823	M 82K OHM J 1/10W	R842	ERQ12HJ1R2	F 1.2 OHM J 1/2W
R662	ERJ6GEYJ102	M 1K OHM J 1/10W	R843	ERQ12AJR12HK	F 0.12 OHM J 1/2W
R663	ERJ6GEYJ103	M 10K OHM J 1/10W	R844	ERQ12AJR12HK	F 0.12 OHM J 1/2W
R664	ERJ8GICY103	M 10K OHM J 1/8W	R845	TAR18BKOR11Z	F 0.11 OHM K 1/4W
R665	ERJ6GEYJ103	M 10K OHM J 1/10W	R846	ERDS1FJ221	C 220 OHM J 1/2W
R666	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R847	ERJ12YJ122	M 1.2K OHM J 1/2W
R667	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R849	ERJ6GEYJ473	M 47K OHM J 1/10W
R668	ERJ8GICY104	M 100K OHM J 1/8W	R850	EROS2CKF2201	M 2.2K OHM F 1/4W
R669	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R851	ERQ14AJ010HK	F 1 OHM J 1/4W
R670	ERDS1FJ104	C 100K OHM J 1/2W	R852	ERJ6GEYJ103	M 10K OHM J 1/10W
R671	ERJ6GEYJ562	M 5.6K OHM J 1/10W	R854	ERG3FJ330	M 33 OHM J 3W
R672	ERJ6GEYJ102	M 1K OHM J 1/10W	R855	ERJ6ENF2101	M 2.1K OHM F 1/10W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R857	ERJ6GEYJ683	M 68K OHM J 1/10W	R951	ERJ6GEYJ223	M 22K OHM J 1/10W
R858	ERDS1FJ222	C 2.2K OHM J 1/2W	R952	ERJ6GEYJ223	M 22K OHM J 1/10W
R859	ERDS1FJ222	C 2.2K OHM J 1/2W	R952	ERJ6GEYJ103	M 10K OHM J 1/10W
R860	ERJ6GEYJ103	M 10K OHM J 1/10W	R963	ERJ6GEYJ103	M 10K OHM J 1/10W
R861	TAR18BKOR11Z	F 0.11 OHM K 1/4W	R969	ERJ6GEYJ334	M 330K OHM J 1/10W
R862	ERJ6ENF302	M 13K OHM F 1/10W	R970	ERJ6GEYJ334	M 330K OHM J 1/10W
R863	ERDS1FJ332	C 3.3K OHM J 1/2W	R971	ERJ6GEYJ334	M 330K OHM J 1/10W
R864	ERG2SJ223	M 22K OHM J 2W	R973	ERJ8GCVJ103	M 10K OHM J 1/8W
R865	ERJ6GEYOR00	M 0 OHM 1/10W	R974	ERJ8GCVJ103	M 10K OHM J 1/8W
R867	ERJ6ENF3741	M 3.74K OHM F 1/10W	R975	ERJ8GCVJ103	M 10K OHM J 1/8W
R868	ERJ6ENF6651	M 6.65K OHM F 1/10W	R977	ERJ6GEYJ223	M 22K OHM J 1/10W
R869	ERJ6ENF4221	M 4.22K OHM F 1/10W	R978	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R871	ERJ12YJ104	M 100K OHM J 1/2W	R979	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R872	ERJ12YJ104	M 100K OHM J 1/2W	R980	ERJ6GEYJ822	M 8.2K OHM J 1/10W
R875	ERDS1FJ224	C 220K OHM J 1/2W	R981	ERJ6GEYJ333	M 33K OHM J 1/10W
R887	EROS2CKF6801	M 6.8K OHM F 1/4W	R982	ERJ6GEYJ101	M 100 OHM J 1/10W
R888	ERJ8GCVJ472	M 4.7K OHM J 1/8W	R983	ERJ6GEYJ101	M 100 OHM J 1/10W
R889	ERDS1FJ683	C 68K OHM J 1/2W	R984	ERJ6GEYJ101	M 100 OHM J 1/10W
R890	ERX3FUX1R6D	M 1.6 OHM J 3W	R985	ERJ6GEYJ101	M 100 OHM J 1/10W
R891	ERDS1FJ224	C 220K OHM J 1/2W	R986	ERDS2TJ221	C 220 OHM J 1/4W
R892	ERDS1FJ334	C 330K OHM J 1/2W	R993	ERJ6GEYOR00	M 0 OHM 1/10W
R893	ERDS1FJ334	C 330K OHM J 1/2W	R1002	ERJ8ENF75R0	M 75 OHM F 1/8W
R895	ERJ6GEYJ102	M 1K OHM J 1/10W	R1004	ERJ6GEYJ330	M 33 OHM J 1/10W
R896	ERJ6GEYJ332	M 3.3K OHM J 1/10W	R1005	ERJ6GEYOR00	M 0 OHM 1/10W
R897	ERDS1FJ334	C 330K OHM J 1/2W	R1007	ERJ6ENF29R4	M 29.4 OHM F 1/10W
R898	ERDS1FJ470	C 47 OHM J 1/2W	R1008	ERJ6ENF7320	M 732 OHM F 1/10W
R899	ERDS1FJ224	C 220K OHM J 1/2W	R1009	ERJ6ENF3900	M 390 OHM F 1/10W
R900	ERDS1FJ334	C 330K OHM J 1/2W	R1010	ERJ6ENF5600	M 560 OHM F 1/10W
R901	ERJ6GEYJ103	M 10K OHM J 1/10W	R1011	ERJ6GEYJ300	M 30 OHM J 1/10W
R902	ERJ6GEYJ682	M 6.8K OHM J 1/10W	R1012	ERDS2TJ101	C 100 OHM J 1/4W
R903	ERJ6GEYJ102	M 1K OHM J 1/10W	R1013	EROS2CKF4702	M 47K OHM F 1/4W
R904	ERJ8GCVJ223	M 22K OHM J 1/8W	R1014	EROS2CKF3091	M 3.09K OHM F 1/4W
R905	ERJ8GCVJ223	M 22K OHM J 1/8W	R1015	ERJ6ENF6811	M 6.81K OHM F 1/10W
R906	ERJ8GCVJ103	M 10K OHM J 1/8W	R1018	ERDS1FJ101	C 100 OHM J 1/2W
R907	ERJ6GEYJ104	M 100K OHM J 1/10W	R1019	ERG2SJ123	M 12K OHM J 2W
R908	ERJ8GCVJ102	M 1K OHM J 1/8W	R1020	ERJ6ENF1002	M 10K OHM F 1/10W
R909	ERJ8GCVJ103	M 10K OHM J 1/8W	R1021	ERJ6ENF1002	M 10K OHM F 1/10W
R910	ERJ8GCVJ563	M 56K OHM J 1/8W	R1022	ERDS1FJ220	C 22 OHM J 1/2W
R911	ERJ8GCVJ563	M 56K OHM J 1/8W	R1023	ERDS2TJ102	C 1K OHM J 1/4W
R912	ERJ8GCVJ563	M 56K OHM J 1/8W	R1024	ERJ6GEYJ822	M 8.2K OHM J 1/10W
R913	ERJ8GCVJ563	M 56K OHM J 1/8W	R1025	ERJ6ENF1202	M 12K OHM F 1/10W
R914	ERJ6GEYJ563	M 56K OHM J 1/10W	R1026	EROS2CKF2262	M 22.6K OHM F 1/4W
R915	ERJ6GEYJ563	M 56K OHM J 1/10W	R1027	ERJ6ENF1002	M 10K OHM F 1/10W
R916	ERJ6GEYJ563	M 56K OHM J 1/10W	R1028	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R917	ERJ6GEYJ331	M 330 OHM J 1/10W	R1030	ERJ6GEYOR00	M 0 OHM 1/10W
R918	ERJ6GEYJ101	M 100 OHM J 1/10W	R1102	ERDS2TJ470	C 47 OHM J 1/4W
R938	ERJ6GEYJ471	M 470 OHM J 1/10W	R1113	EROS2CKF4702	M 47K OHM F 1/4W
R940	ERJ6GEYJ223	M 22K OHM J 1/10W	R1114	EROS2CKF3091	M 3.09K OHM F 1/4W
R941	ERJ6GEYJ223	M 22K OHM J 1/10W	R1115	ERJ6ENF6811	M 6.81K OHM F 1/10W
R943	ERJ6GEYJ103	M 10K OHM J 1/10W	R1118	ERDS1FJ101	C 100 OHM J 1/2W
R944	ERJ6GEYJ103	M 10K OHM J 1/10W	R1119	ERG2SJ123	M 12K OHM J 2W
R946	ERJ6GEYJ101	M 100 OHM J 1/10W	R1120	ERJ6ENF1002	M 10K OHM F 1/10W
R947	ERJ6GEYJ331	M 330 OHM J 1/10W	R1121	ERJ6ENF1002	M 10K OHM F 1/10W
R949	ERJ8GCVJ223	M 22K OHM J 1/8W	R1122	ERDS1FJ220	C 22 OHM J 1/2W
R950	ERJ8GCVJ223	M 22K OHM J 1/8W	R1123	ERDS2TJ102	C 1K OHM J 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R1124	ERJ6GEYJ822	M 3.2K OHM J 1/10W	R1339	ERJ6GEYJ101	M 100 OHM J 1/10W
R1125	ERJ6ENF1202	M 12K OHM F 1/10W	R1401	ERJ6GEYJ331	M 330 OHM J 1/10W
R1126	EROS2CKF2262	M 22.6K OHM F 1/4W	R1402	ERJ6ENF2702	M 27K OHM F 1/10W
R1127	ERJ6ENF1002	M 10K OHM F 1/10W	R1403	ERJ6ENF3301	M 3.3K OHM F 1/10W
R1128	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R1404	ERJ6ENF2212	M 22.1K OHM F 1/10W
R1130	ERJ6GEYJ000	M 0 OHM 1/10W	R1405	ERJ6ENF5621	M 5.62K OHM F 1/10W
R1131	ERJ8GCVJ330	M 33 OHM J 1/8W	R1408	ERJ6ENF1002	M 10K OHM F 1/10W
R1202	ERJ6ENF750	M 75 OHM F 1/8W	R1409	ERJ6ENF1002	M 10K OHM F 1/10W
R1204	ERJ6GEYJ330	M 33 OHM J 1/10W	R1410	ERJ6GEYJ124	M 120K OHM J 1/10W
R1205	ERJ6GEYJ682	M 6.8K OHM J 1/10W	R1411	ERJ6GEYJ101	M 100 OHM J 1/10W
R1207	ERJ6ENF66R5	M 66.5 OHM F 1/10W	R2301	ERJ6GEYJ102	M 1K OHM J 1/10W
R1208	ERJ6ENF7320	M 732 OHM F 1/10W	R2302	ERJ6GEYJ102	M 1K OHM J 1/10W
R1209	ERJ6ENF3900	M 390 OHM F 1/10W	R2303	ERDS1FJ2R2	C 2.2 OHM J 1/2W
R1210	ERJ6ENF5600	M 560 OHM F 1/10W	R2304	ERDS1FJ2R2	C 2.2 OHM J 1/2W
R1211	ERJ6GEYJ220	M 22 OHM J 1/10W	R2305	ERJ6GEYJ331	M 330 OHM J 1/10W
R1212	ERDS2TJ331	C 330 OHM J 1/4W	R2306	ERJ6GEYJ331	M 330 OHM J 1/10W
R1213	EROS2CKF4702	M 47K OHM F 1/4W	R2307	ERJ6GEYJ000	M 0 OHM 1/10W
R1214	EROS2CKF3091	M 3.09K OHM F 1/4W	R2308	ERJ6GEYJ000	M 0 OHM 1/10W
R1215	ERJ6ENF6811	M 6.81K OHM F 1/10W	R2401	ERJ6GEYJ103	M 10K OHM J 1/10W
R1218	ERDS1FJ101	C 100 OHM J 1/2W	R2402	ERJ6GEYJ683	M 68K OHM J 1/10W
R1219	ERG2SJ123	M 12K OHM J 2W	R2403	ERJ6GEYJ103	M 10K OHM J 1/10W
R1220	ERJ6ENF1002	M 10K OHM F 1/10W	R2404	ERJ6GEYJ683	M 68K OHM J 1/10W
R1221	ERJ6ENF1002	M 10K OHM F 1/10W	R2405	ERJ6ENF4021	M 4.02K OHM F 1/10W
R1222	ERDS1FJ220	C 22 OHM J 1/2W	R2406	ERJ6ENF3571	M 3.57K OHM F 1/10W
R1223	ERDS2TJ102	C 1K OHM J 1/4W	R2407	ERJ6ENF4021	M 4.02K OHM F 1/10W
R1224	ERJ6GEYJ822	M 8.2K OHM J 1/10W	R2408	ERJ6ENF1002	M 10K OHM F 1/10W
R1225	ERJ6ENF1202	M 12K OHM F 1/10W	R2409	ERJ6GEYJ102	M 1K OHM J 1/10W
R1226	EROS2CKF2262	M 22.6K OHM F 1/4W	R2410	ERJ6GEYJ102	M 1K OHM J 1/10W
R1227	ERJ6ENF1002	M 10K OHM F 1/10W	R2411	ERJ6ENF6651	M 6.65K OHM F 1/10W
R1228	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R2412	ERJ6ENF2491	M 2.49K OHM F 1/10W
R1230	ERJ6GEYJ000	M 0 OHM 1/10W	R2413	ERJ6GEYJ102	M 1K OHM J 1/10W
R1301	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R2414	ERG2SJ181	M 180 OHM J 2W
R1302	ERJ6GEYJ102	M 1K OHM J 1/10W	R2415	ERJ6GEYJ822	M 8.2K OHM J 1/10W
R1303	ERJ6GEYJ753	M 75K OHM J 1/10W	R2416	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R1305	ERJ6ENF1002	M 10K OHM F 1/10W	R2417	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R1306	ERJ6ENF1002	M 10K OHM F 1/10W	R2418	ERJ6GEYJ682	M 6.8K OHM J 1/10W
R1307	ERJ6GEYJ271	M 270 OHM J 1/10W	OTHERS		
R1308	ERJ6GEYJ102	M 1K OHM J 1/10W	TESA003	SPRING(PCB EARTH)	
R1312	ERJ6GEYJ102	M 1K OHM J 1/10W	TES9541-1	SPRING(LED)	
R1313	ERJ6GEYJ102	M 1K OHM J 1/10W	TMKE008	SILICONE SHEET	
R1314	ERJ6GEYJ331	M 330 OHM J 1/10W	TMKK001	TAPE	
R1315	ERJ6GEYJ474	M 470K OHM J 1/10W	TMK87907	MICA SHEET	
R1316	ERJ6GEYJ222	M 2.2K OHM J 1/10W	TUC87574	AC INLET BRACKET	
R1317	ERJ6ENF9101	M 9.1K OHM F 1/10W	TUW85515	JACK BRACKET	
R1318	ERJ6GEYJ682	M 6.8K OHM J 1/10W	XTB3+6C	SCREW	
R1320	ERJ6ENF2701	M 2.7K OHM F 1/10W	XTV3+12J	SCREW	
R1322	ERJ6GEYJ100	M 10 OHM J 1/10W	XTV3+16J	SCREW	
R1324	ERJ6GEYJ103	M 10K OHM J 1/10W	XWGT40660	WASHER	
R1325	ERJ6GEYJ223	M 22K OHM J 1/10W	XWG3F10	WASHER	
R1326	ERJ6GEYJ223	M 22K OHM J 1/10W	△ F801	XBA2C31TB15L	FUSE(3.15A)
R1327	ERJ6GEYJ103	M 10K OHM J 1/10W	FG1	TJC85318	LUG TERMINAL
R1328	ERJ6GEYJ102	M 1K OHM J 1/10W	FG2	TJC85341	EARTH LUG
R1329	ERJ6GEYJ102	M 1K OHM J 1/10W	FG3	TJC85341	EARTH LUG
R1330	ERJ6ENF8251	M 8.25K OHM F 1/10W	FG4	TJC85341	EARTH LUG
R1331	ERJ6ENF1502	M 15K OHM F 1/10W	FG6	TJC85341	EARTH LUG
R1332	ERJ6ENF1002	M 10K OHM F 1/10W	FS801	TJC85502T	FUSE HOLDER
R1333	ERJ8GCVJ681	M 680 OHM J 1/8W	FS803	TJC85502T	FUSE HOLDER
R1334	ERJ6GEYJ101	M 100 OHM J 1/10W	JC101	TJC85341	EARTH LUG
R1335	ERJ12YJ102	M 1K OHM J 1/2W	JC102	TJC85341	EARTH LUG
R1336	ERJ6GEYJ102	M 1K OHM J 1/10W	JK2001	TJS9A8440	HEADPHONE JACK
R1337	ERJ6GEYJ101	M 100 OHM J 1/10W	JK2002	TJS9A8440	HEADPHONE JACK
R1338	ERJ6GEYJ101	M 100 OHM J 1/10W			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
JK2003T	TUS948824	MINI JACK			
JK2004T	TUS94881A	PHONE PIN SOCKET (2P)			
N74	TUS948730	10P CONNECTOR			
N78	TUS948730	10P CONNECTOR			
N11	TUSF00602	2P CONNECTOR			
N12	TUSF00603	3P CONNECTOR			
N124	TUS948740	22P CONNECTOR			
N128	TUS948740	22P CONNECTOR			
N13	TUSF00604	4P CONNECTOR			
N21A	EMCS0264MB	2P CONNECTOR (BLUE)			
N22A	EMCS0564M	5P CONNECTOR			
N101	TUS118590	2P CONNECTOR			
N103	TUS849880	15P CONNECTOR			
N104A	EMCS0364M	3P CONNECTOR			
N104B	TXAUV3P1663	3P CONNECTOR ASSY			
N106	TJC85342T	LUG TERMINAL			
N107A	EMCS0264M	2P CONNECTOR			
N381	TUS1A5280	CRT SOCKET			
N801	TUS8A9361	AC SOCKET			
N803A	EMCS0264M	2P CONNECTOR			
N901	EMCS0451ML	4P CONNECTOR (L-TYPE)			
N2001A	EMCS0664M	6P CONNECTOR			
N2001B	EMCS0651ML	6P CONNECTOR (L-TYPE)			
N2002	EMCS0264M	2P CONNECTOR			
N2003	EMCS0464M	4P CONNECTOR			
N2005	EMCS0564M	5P CONNECTOR			
N2007A	EMCS0551ML	5P CONNECTOR			
N510-1	TEL302-9	TERMINAL			
N510-2	TEL302-9	TERMINAL			
N510-3	TEL302-9	TERMINAL			
N510-4	TEL302-9	TERMINAL			
N802-1	TEL302-9	TERMINAL			
N802-2	TEL302-9	TERMINAL			
PC830	PC123FY8	PHOTO COUPLER			
PC831	PC123FY8	PHOTO COUPLER			
PC832	TLP75004	PHOTO COUPLER			
S290	TAG10003	SPARK GAP			
S301	TGPS152GL	SPARK GAP			
S601	TAGDSP201MB	SPARK GAP			
S1001	TAGDSP141TTA	SPARK GAP			
S1101	TAGDSP141TTA	SPARK GAP			
S1201	TAGDSP141TTA	SPARK GAP			
SW801	ESB91231A	SWITCH (POWER)			
SW901	EVQP8005K	SWITCH			
SW902	EVQP8005K	SWITCH			
SW903	EVQP8005K	SWITCH			
SW904	EVQP8005K	SWITCH			
SW905	EVQ33405R	SWITCH			
SW906	EVQ33405R	SWITCH			
SW907	EVQ33405R	SWITCH			
TP1	TEL302-9	TERMINAL			
TP2	TEL302-9	TERMINAL			
TP3	TEL302-9	TERMINAL			
TP4	TEL302-9	TERMINAL			
TP5	TEL302-9	TERMINAL			
X901	TSS2165TM	CRYSTAL OSCILLATOR			



WARNING

This service information is designed for experienced repair technicians only and not for general public use.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1 CAUTION:

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

2 SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are found in areas such as the associated flyback and yoke circuits.

3 FIRE & SHOCK HAZARD

3-1 Insert an isolation transformer between the CRT display and the AC power line before servicing the chassis.

3-2 In servicing, pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.

3-3 All the protective devices must be reinstalled per original design.

3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove any foreign material.

4 LEAKAGE CURRENT COLD CHECK

4-1 Unplug the AC cord and connect a jumper between the two prongs on the plug.

4-2 Turn the CRT display power switch "on".

4-3 Measure the resistance value with an ohmmeter between the jumper AC plug and each exposed metallic part on the CRT display such as the metal frame, screwheads, control shafts, etc. When the exposed metallic part has a return path to the chassis, the read should be 1.8 megohm minimum.

5 LEAKAGE CURRENT HOT CHECK

5-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

5-2 Connect a 1500 ohm, 10 watt resistor, paralleled with a 0.15mF capacitor between each exposed metallic part and a good ground (as shown in Fig. 1).

5-3 Use an AC voltmeter with a sensitivity of 100 ohm/volt or more and measure the AC voltage across the combination 1500 ohm resistor and 0.15mF capacitor.

5-4 Move the resistor connection to each exposed metallic part and measure the voltage.

5-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.

5-6 Voltage measured must not exceed 7.5 volt RMS from any exposed metallic part to ground. A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of a shock hazard.

Note: High voltage is presented when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis in order to prevent shock hazard.

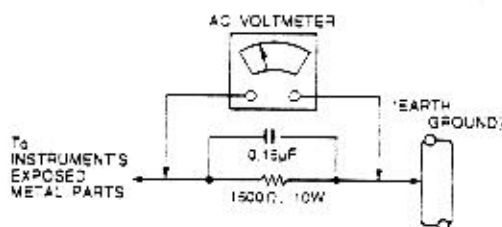


Fig.1

6 IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only ViewSonic replacement picture tubes.

7 X-RADIATION

WARNING: The only potential source of X-Radiation is the picture tube. However, when the high voltage circuitry is operating properly, there is no possibility of a X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level.

Note: It is important to use an accurate periodically calibrated high voltage meter.

7-1 The procedure for adjusting high voltage is as shown on page 27.

7-2 If can not be adjusted to 25.0 kv, immediate service is required to prevent the possibility of premature component failure.

7-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

IMPORTANT SAFETY NOTICE

There are special components used in this CRT displays which are important for safety. These parts are identified by the international symbol \triangle on the schematic diagram and on the replacement parts list. It is essential that these critical parts be replaced with manufacture's specified parts to prevent S-RADIATION, shock, fire or other hazards. do not modify the original design, as it will void the original parts and labor guarantee.

GENERAL INFORMATION

1. OUTLINE

1769GA-1 is 17 inch color CRT display for Multimedia with the following nice features.

Stereo Dome Speakers with 2 W + 2 W output and Mic function are mounted on monitor, and Headphone is available to use. This monitor also has OSD (on screen display) control and Power saving function based on VESA DPMS.

2. FEATURES

2-1 Stereo Dome Speakers

- High quality stereo sound by ViewSonic Dome Speaker system
- Audio typical output 2 W + 2 W
- THD (Total Harmonic Distortion) maximum 1.0 % (output = 1.0 W)

2-2 Mic function function

A microphone is installed on the front panel of monitor for sending voice message to computer system. Also microphone jack is mounted on left side of monitor for additional use.

2-3 Headphone function

Headphone jack is also mounted on left side of monitor to enjoy music, conversation and entertainment.

2-4 Power Saving

- This monitor is equipped with power management circuitry conforming to the VESA standard.
- Depending on the signal from a computer, switching occurs between four modes to minimize non-essential energy consumption.

2-5 OSD (on screen display) function

- OSD (5 languages) is a man-machine interface. Any one is able to set up the picture desired through OSD menu.

2-6 Self Test function

- With a touch of the ( button) the self-test

function quickly identifies a "no signal condition". This time saving function simplifies diagnostics and prevents unnecessary service calls.

2-7 Power Supply with high power factor

- Power Supply with high power factor enables to utilize AC power efficiently meeting EC555-2 (Line Harmonics).

2-8 Ergonomic design

- Low emission design to meet MPR II
- ESF (Electro static field) free coating on CRT

2-9 Multi scan with digital technology

- 8 bit micro computer controls the circuit operation to meet with wide range signal of f_v=30~69 kHz and f_h=50~160 Hz. So VGA640x350, VGA640x400, VGA640x480, SVGA800x600, 1024x768 and 1280x1024 mode are applicable.

2-10 3 Factory presets, (+5 Reservation), 13 user memories.

- 3 standard modes are preset at the factory.
- 5 modes are reserved at the factory.
- 13 user memories are available to set the users own timing and display information.

2-11 Flat Face and fine dot pitch

- Flat face CRT with a fine dot pitch of 0.27 mm provides for comfortable viewing.

2-12 Superior display performance

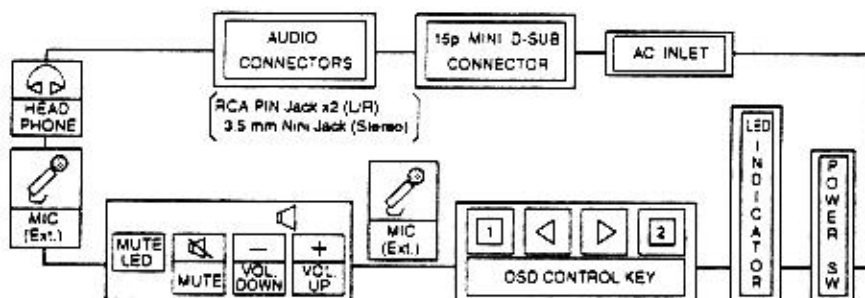
- Good focus by sophisticated gun and dynamic focus circuit
- High contrast CRT (TM=42.5%)
- Minimized distortion by correction circuit
- Good convergence
- Full scan image for graphics





2-13 Plug and Play

- VESA/DDC1 (Display Data Channel) compatible

SPECIFICATION

1. DIAGRAM





- 1.1 POWER SW, LED, , , , , Audio Volume Up/Down Key, Mute-Key and Mute LED are located on the front panel.


- 1.2 Signal connector and AC inlet are located on the back side of the cabinet.


- 1.3 OSD menu includes the following function.

CONTRAST	BRIGHTNESS	DEGAUSS
H POSITION	H SIZE	V POSITION
V SIZE	V PIN-CUSHION	TRAPEZOID
PARALLELOGRAM	ROTATION	
COLOR SELECT	DISPLAY FREQUENCY	

VIDEO INPUT LEVEL LANGUAGES RECALL.

- ※) CONTRAST can be directly controlled with / -key.

- ※) With sync signal, OSD menu appears by pushing -key.

- Without sync signal, self test menu appears by pushing -key.

- ※) AUDIO LEVEL can be directly controlled with VOL UP/DOWN-Key.

- ※) OPTION : H/V Moire reduction.

2. MECHANICAL SPECIFICATIONS

refer to the attached drawing

- 2.1 Dimension : Height : 415 mm (16.5") typ
Width : 438 mm (17.2") typ
Depth : 438 mm (17.2") typ

- 2.2 Net Weight : 19.5 kg (39.1 lbs) typ.

3. CONNECTORS

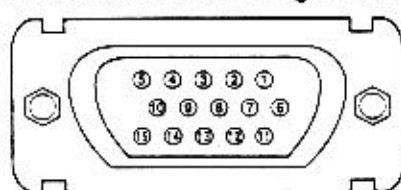
3.1 Signal connector

- Video Signal : 15pin Mini D-Sub
Line Input : RCA Type pin jack
Mic Output : ϕ 3.5 mm Stereo Mini jack**
External Microphone : ϕ 3.5 mm Stereo Mini jack
Headphone : ϕ 3.5 mm Stereo Mini jack

** To connect with Sound Card. Please use stereo type cable. If you use monoral type cable, Mic doesn't work correctly.

- 3.2 AC inlet : CEE 22 typed connector

<15P Mini D-Sub Pin assignment>



- 1 ... RED 6 ... GROUND 11 ... GROUND
2 ... GREEN 7 ... GROUND 12 ... SDA (DDC)
3 ... BLUE 8 ... GROUND 13 ... H. SYNC.
4 ... GROUND 9 ... - (OPEN) 14 ... V. SYNC.
5 ... GROUND (DDC) 10 ... GROUND 15 ... SCL (DDC)

4. CRT SPECIFICATIONS

Part No.	M41KXH140X
Type	17", 90°, 29φ, in-line gun (15.7" Viewable)
Dot Pitch	0.27 mm
Phosphor	R, G, B Short Persistence (Hi-Eu RED)
CIE Color point	Red : x: 0.635 (± 0.020) y: 0.333 (± 0.020) Green : x: 0.280 (± 0.020) y: 0.595 (± 0.020) Blue : x: 0.152 (± 0.015) y: 0.063 (± 0.015)
Bulb	DARK TINT
Face	NEW AGRAS COAT
Total Transmission	42.5 %

5. ELECTRICAL SPECIFICATIONS

5.1 Standard conditions ... Except special items

Display image	Green, full "H" characters with a border line. (7 x 9 dots) Video signal : 100% duty Display area : 300 mm x 225 mm
Video signal level	0.7 Vpp
Contrast, Brightness	Contrast : Max., Brightness : detent point
Ambient Temperature	20 ± 5 °C (68 ± 9 °F)
Input Voltage	AC 120 V, 60 Hz or AC 220 V 50 Hz
Terrestrial magnetism	Vertical field : northern hemisphere field (40 μT) Horizontal field : no field
Viewing direction	Parallel to the CRT axis
Measurements	After an initial warming up time of more than 30 minutes.
Ambient light	200 ± 50 lx
Display mode	1024 x 768 (60.02 kHz, 75.03 Hz)

5.2 POWER

5.2.1 Power supply : Commercial power source

Input voltage	AC 90 - 132 V AC 198 - 264 V
Power frequency	50 Hz ± 3 Hz / 60 Hz ± 3 Hz
Input current	1.5 A Max. (100V) typ.
Inrush current (at 20° C)	40 A typ
Power consumption	100 W (Typ.)

(※1) Input current is reduced to about 60 % our current products by "High Power Factor" technology.

5.2.2 Power Management for Power Saving

Power saving system is designed based upon VESA DPMS standard (Version : 1.0)

1) Power consumption and recovery time

APM State	SIGNALS			MONITOR POWER CONSUMPTION	RECOVERY TIME TO ON STATE	INDICATOR
	H. Sync	V. Sync	VIDEO			
ON	*3 NOR-MAL	*3 NOR-MAL	*2 ACTIVE	*4 100%	—	Green
STANDBY	No Sync or *5 < 6 kHz	> 40 Hz	BLANK	< 30 W	< 4s	Yellow
SUSPEND	> 10 kHz	No Sync or *5 < 20 Hz	BLANK	< 30 W	< 4s	Yellow
OFF	No Sync or *5 < 6 kHz	No Sync or *5 < 20 Hz	BLANK	< 8 W	< 20s	Yellow

** The transition time from ON state to each APM state is 5 seconds minimum.

*1: APM: Advanced Power Management.

*2: Means condition of power consumption for ON state.

DISPLAY IMAGE: WHITE full "H" characters with a border line (7 X 9 dots).

*3: NORMAL: See *7.4 ACCEPTABLE TIMING

*4: Power Consumption is measured at AC 100-240V.

*5: Power saving operation is done at or less than specified value in the list.

5.3 Standard timing (Standard mode)

- The following total 3 modes (5 modes) are preset (reserved) in the memory as standard timing at the factory.
- Fig-1 shows a definition of timing and signal level.
- Electrical performance is specified. This SPECIFICATION is specified at STD (1024 x 768) mode unless otherwise mentioned. (MODE-2)

TIMING CHART

A	Period
B	Blanking
C	Sync Width
D	Back Porch
E	Active
F	Front Porch

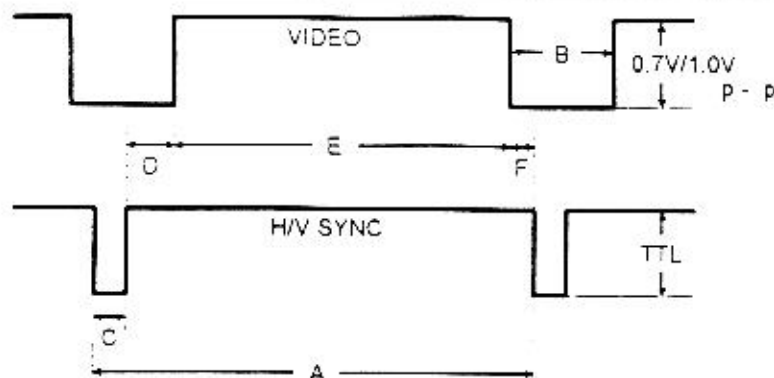


Fig.2

FOR PRESET

		MODE - 1	MODE - 2	MODE - 3
		640 × 480 (60)	1024 × 768 (75)	1280 × 1024 (60)
DOT CLOCK		25.1745 MHz	79.7500 MHz	109.4695 MHz
H	f H	31.4681 KHz	60.0229 KHz	63.7192 KHz
	A - PERIOD	31.778 μs (800 dots)	16.660 μs (1,312 dots)	15.694 μs (1,718 dots)
	B - BLANKING TIME	6.356 μs (160 dots)	3.657 μs (288 dots)	4.001 μs (438 dots)
	C - SYNC WIDTH	3.813 μs (96 dots)	1.219 μs (96 dots)	1.425 μs (156 dots)
	D - BACK PORCH	1.907 μs (48 dots)	2.235 μs (176 dots)	2.174 μs (238 dots)
	E - ACTIVE TIME	25.423 μs (640 dots)	13.003 μs (1,024 dots)	11.693 μs (1,280 dots)
	F - FRONT PORCH	0.636 μs (16 dots)	0.203 μs (16 dots)	0.402 μs (44 dots)
V	f V	59.9393 Hz	75.0286 Hz	59.9992 Hz
	A - PERIOD	16.684 ms (525 lines)	13.328 ms (800 lines)	16.667 ms (1,062 lines)
	B - BLANKING TIME	1.430 ms (45 lines)	0.533 ms (32 lines)	0.596 ms (38 lines)
	C - SYNC WIDTH	0.064 ms (2 lines)	0.050 ms (3 lines)	0.047 ms (3 lines)
	D - BACK PORCH	1.049 ms (33 lines)	0.466 ms (28 lines)	0.502 ms (32 lines)
	E - ACTIVE TIME	15.254 ms (480 lines)	12.795 ms (768 lines)	16.071 ms (1,024 lines)
	F - FRONT PORCH	0.318 ms (10 lines)	0.017 ms (1 lines)	0.047 ms (3 lines)
SYNC POLARITY(H/V)		Negative / Negative	Positive / Positive	Sync on green

FOR RESERVATION

		MODE - 4	MODE - 5	MODE - 6
		640 × 480 (75)	800 × 600 (75)	MAC-II (832 × 624)
DOT CLOCK		31.5000 MHz	49.5000 MHz	57.2830 MHz
H	f H	37.5000 KHz	46.8750 KHz	49.7248 KHz
	A - PERIOD	26.667 μs (840 dots)	21.333 μs (1,056 dots)	20.111 μs (1,152 dots)
	B - BLANKING TIME	6.349 μs (200 dots)	5.172 μs (256 dots)	5.586 μs (320 dots)
	C - SYNC WIDTH	2.032 μs (64 dots)	1.616 μs (80 dots)	1.117 μs (64 dots)
	D - BACK PORCH	3.810 μs (120 dots)	3.232 μs (160 dots)	3.910 μs (224 dots)
	E - ACTIVE TIME	20.317 μs (640 dots)	16.162 μs (800 dots)	14.524 μs (832 dots)
	F - FRONT PORCH	0.508 μs (16 dots)	0.323 μs (16 dots)	0.559 μs (32 dots)
V	f V	75.0000 Hz	75.0000 Hz	74.5500 Hz
	A - PERIOD	13.333 ms (500 lines)	13.333 ms (625 lines)	13.414 ms (667 lines)
	B - BLANKING TIME	0.533 ms (20 lines)	0.533 ms (25 lines)	0.865 ms (43 lines)
	C - SYNC WIDTH	0.080 ms (3 lines)	0.064 ms (3 lines)	0.060 ms (3 lines)
	D - BACK PORCH	0.427 ms (16 lines)	0.448 ms (21 lines)	0.784 ms (39 lines)
	E - ACTIVE TIME	12.800 ms (480 lines)	12.800 ms (600 lines)	12.549 ms (624 lines)
	F - FRONT PORCH	0.027 ms (1 lines)	0.021 ms (1 lines)	0.020 ms (1 lines)
SYNC POLARITY(H/V)		Negative / Negative	Positive / Positive	Negative / Negative

FOR RESERVATION

	MODE - 7	MODE - 8
	1024 × 768 (70)	1024 × 768 (72)
DOT CLOCK	75.0000 MHz	75.0000 MHz
f H	56.4759 KHz	57.8704 KHz
A - PERIOD	17.707 μs (1.328 dots)	17.280 μs (1.296 dots)
B - BLANKING TIME	4.053 μs (304 dots)	3.627 μs (272 dots)
H C - SYNC WIDTH	1.813 μs (136 dots)	1.920 μs (144 dots)
D - BACK PORCH	1.920 μs (144 dots)	1.387 μs (104 dots)
E - ACTIVE TIME	13.653 μs (1,024 dots)	13.653 μs (1,024 dots)
F - FRONT PORCH	0.320 μs (24 dots)	0.320 μs (24 dots)
f V	70.0694 Hz	71.7995 Hz
A - PERIOD	14.272 ms (806 lines)	13.928 ms (806 lines)
B - BLANKING TIME	0.673 ms (38 lines)	0.657 ms (38 lines)
V C - SYNC WIDTH	0.106 ms (5 lines)	0.104 ms (6 lines)
D - BACK PORCH	0.513 ms (29 lines)	0.501 ms (29 lines)
E - ACTIVE TIME	13.599 ms (768 lines)	13.271 ms (768 lines)
F - FRONT PORCH	0.053 ms (3 lines)	0.052 ms (3 lines)
SYNC POLARITY(H/V)	Negative / Negative	Negative / Negative

FOR ADJUSTMENT

	- 1	- 2	- 3
DOT CLOCK	22.6000 MHz	40.2480 MHz	64.0400 MHz
f H	29.5039 KHz	39.0000 KHz	53.9966 KHz
A - PERIOD	33.894 μs (766 dots)	25.641 μs (1,032 dots)	18.520 μs (1,186 dots)
B - BLANKING TIME	8.496 μs (192 dots)	3.926 μs (158 dots)	4.497 μs (288 dots)
H C - SYNC WIDTH	4.115 μs (93 dots)	1.491 μs (60 dots)	1.718 μs (110 dots)
D - BACK PORCH	2.788 μs (63 dots)	2.336 μs (94 dots)	2.186 μs (140 dots)
E - ACTIVE TIME	25.398 μs (574 dots)	21.715 μs (874 dots)	14.022 μs (898 dots)
F - FRONT PORCH	1.593 μs (36 dots)	0.099 μs (4 dots)	0.593 μs (38 dots)
f V	48.0520 Hz	77.0751 Hz	105.0518 Hz
A - PERIOD	20.811 ms (614 lines)	12.974 ms (506 lines)	9.519 ms (514 lines)
B - BLANKING TIME	0.915 ms (27 lines)	0.744 ms (29 lines)	0.482 ms (26 lines)
V C - SYNC WIDTH	0.102 ms (3 lines)	0.103 ms (4 lines)	0.037 ms (2 lines)
D - BACK PORCH	0.712 ms (21 lines)	0.513 ms (20 lines)	0.352 ms (19 lines)
E - ACTIVE TIME	19.896 ms (587 lines)	12.231 ms (477 lines)	9.038 ms (488 lines)
F - FRONT PORCH	0.102 ms (3 lines)	0.128 ms (5 lines)	0.093 ms (5 lines)
SYNC POLARITY(H/V)	Negative / Negative	Negative / Negative	Negative / Negative

FOR ADJUSTMENT

	- 4
DOT CLOCK	93.4300 MHz
f H	69.9850 KHz
A - PERIOD	14.289 μs (1,335 dots)
B - BLANKING TIME	3.329 μs (311 dots)
H C - SYNC WIDTH	1.092 μs (102 dots)
D - BACK PORCH	1.820 μs (170 dots)
E - ACTIVE TIME	10.960 μs (1,024 dots)
F - FRONT PORCH	0.417 μs (39 dots)
f V	165.0590 Hz
A - PERIOD	6.058 ms (424 lines)
B - BLANKING TIME	0.457 ms (32 lines)
V C - SYNC WIDTH	0.043 ms (3 lines)
D - BACK PORCH	0.343 ms (24 lines)
E - ACTIVE TIME	5.601 ms (392 lines)
F - FRONT PORCH	0.071 ms (5 lines)
SYNC POLARITY(H/V)	Negative / Negative